

***Simplicity* AGCO ALLIS**

CORONET & 400 SERIES RIDERS

8.5HP Gear Models

Mfg No.	Description
1692168	Coronet, 8.5HP Gear
1692177	409G, 8.5HP Gear

12.5HP Gear Models

Mfg No.	Description
1692129	Coronet, 12.5HP Gear
1692175	412G, 12.5HP Gear

12.5HP Hydro Models

Mfg No.	Description
1692130	Coronet, 12.5HP Hydro
1692176	412H, 12HP Hydro

30" Mower Decks

Mfg No.	Description
1692126	30" Mower Deck
1692172	30" Mower Deck

30" Mulching Mower

Mfg No.	Description
1692127	30" Mulching Mower Deck
1692173	30" Mulching Mower Deck

34" Mower Decks

Mfg No.	Description
1692128	34" Mower Deck
1692174	34" Mower Deck

REPLACEMENT OPERATOR'S MANUAL



1708642-03

1708914-03

4/1993

TP 100-1513-03-C0-SA



Contents

SAFETY RULES	2
DECALS	4
RIDER OPERATION	6
Rider Features	6
Dash Controls	8
Engine Compartment	10
Safety Interlock System	12
Operation on Slopes	14
Checks Before Starting	14
Starting and Stopping	15
Clutch/Brake Pedal Operation	16
Pushing the Rider by Hand	17
MOWER OPERATION	18
Mower Removal & Installation	19
Mowing Pattern & Tips	21
Mulching Mower Operation	22
Mower Cutting Height Adjustment	24
NORMAL CARE	25
Normal Care Schedule	25
Storage	26
Rider Seat Deck Care	26
Lubrication	27
Check Tire Pressure	30
Battery Maintenance	30
Check Hydrostatic Transmission & Cooling Fan	31
Check Fuel Filter	31
Servicing the Mower Blades	32


TROUBLESHOOTING	33
Troubleshooting Chart	33
Battery Replacement	37
Jump Starting with Auxiliary Battery	37
Drive Belt Replacement	40
Mower Belt Replacement	40
ADJUSTMENTS	42
Mower Leveling - Side-To-Side	42
Mower Leveling - Front-To-Back	44
Transport Height Adjustment	45
Brake Adjustment	46
Clutch/Brake Rod Adjustment	46
Neutral Adjustment - Gear	46
Neutral Adjustment - Hydro	48
Return-To-Neutral Adjustment - Hydro	49
Idle Pulley Adjustment - Hydro	50
Steering Gear Adjustment	51
Mower Blade Stopping Check	51
SPECIFICATIONS	52
COMMON REPLACEMENT PARTS	54

INTERNATIONAL SYMBOLS Inside Rear Cover

NOTE: In this manual, "left" and "right" are referred to as seen from the operating position.

Safety Rules



Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of rider, severe personal injury or death to you, yourself or bystanders, or damage to property or equipment. This mowing deck is capable of amputating hands and feet and throwing objects. The triangle  in text signifies important cautions or warnings which must be followed.

IMPORTANT - Safe operation practices for riding mowers.

I. General operation

1. Read, understand, and follow all instructions in the manual and on the rider before starting.
2. Only allow responsible adults, who are familiar with the instructions, to operate the rider.
3. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
4. Be sure the area is clear of other people before mowing. Stop rider if anyone enters the area.
5. Never carry passengers.
6. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.
7. Be aware of the mower discharge direction and do not point it at anyone. **Do not operate the mower** without either the entire grass catcher or the guard in place.
8. Slow down before turning.
9. Never leave a running rider unattended. Always turn off blades, set parking brake, stop engine, and remove keys before dismounting.
10. Turn off blades when not mowing.
11. Stop engine before removing grass catcher or unclogging chute.
12. Mow only in daylight or good artificial light.
13. Do not operate the rider while under the influence of alcohol or drugs.

14. Watch for traffic when operating near or crossing roadways.
15. Use extra care when loading or unloading the rider into a trailer or truck.

II. Slope operation

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

DO

- Refer to page 14 for recommendations for wheel weights or counterweights to improve stability.
- Mow up and down slopes, not across.
- Remove obstacles such as rocks, tree limbs, etc.
- Watch for holes, ruts, or bumps. Uneven terrain could overturn the rider. *Tall grass can hide obstacles.*
- Use slow speed. Choose a low gear so that you will not have to stop or shift while on the slope.
- Use extra care with grass catchers or other attachments. These can change the stability of the rider.
- Keep all movement on the slopes *slow* and *gradual*. Do not make sudden changes in speed or direction.
- Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly *straight* down the slope.

DO NOT

- *Do not* turn on slopes unless necessary, and then, turn slowly and gradually downhill, if possible.
- *Do not* mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- *Do not* mow on wet grass. Reduced traction could cause sliding.
- *Do not* try to stabilize the rider by putting your foot on the ground.
- *Do not* use grass catcher on steep slopes.

III. Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the rider and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn rider off if children enter the area.
3. Before and when backing, look behind and *down* for small children.
4. Never carry children. They may fall off and be seriously injured or interfere with safe rider operation.
5. Never allow children to operate the rider.
6. Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

IV. Service

1. Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
 - a) Use only an approved container.
 - b) Never remove gas cap or add fuel with the engine running. Allow engine to cool before refueling. Do not smoke.
 - c) Never refuel the rider indoors.
 - d) Never store the rider or fuel container inside where there is an open flame, such as in a water heater.
2. Never run a rider inside a closed area.
3. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
4. Never tamper with safety devices. Check their proper operation regularly.
5. Keep rider free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. Allow rider to cool before storing.
6. Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
7. Never make adjustments or repairs with the engine running.
8. Grass catcher components are subject to wear, damage, and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check components and replace with manufacturer's recommended parts, when necessary.
9. Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
10. Check brake operation frequently. Adjust and service as required.

⚠ DANGER



**ROTATING BLADES
CUT OFF ARMS
AND LEGS**

**STOP MOWER WHEN
CHILDREN ARE NEAR
NO RIDERS, THEY FALL OFF**

⚠ DANGER



**OPERATING
ON SLOPES
CAN BE DANGEROUS**

**SEE OPERATOR'S MANUAL
IF YOU CANNOT BACK UP A HILL,
DO NOT DRIVE ON IT**

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH

- READ OPERATOR'S MANUAL(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS AND SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- AVOID SUDDEN TURNS.
- IF YOU CANNOT BACK UP A HILL, DO NOT OPERATE ON IT.
- GO UP AND DOWN SLOPES, NOT ACROSS.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE AND BACK DOWN SLOWLY.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- WHEN LEAVING MACHINE, SHUT OFF ENGINE, REMOVE KEY, AND SET PARKING BRAKE.

⚠ CAUTION DO NOT TOW TRACTOR

DAMAGE MAY RESULT TO TRANSMISSION

OPERATION

TO START ENGINE

SEAT MUST BE OCCUPIED. TRACTION LEVER IN NEUTRAL. DEPRESS CLUTCH/BRAKE PEDAL, AND PTO SWITCH OFF.

WHEN OPERATOR LEAVES SEAT:

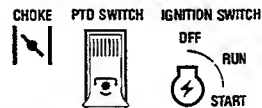
ENGINE WILL SHUT OFF WITH TRACTION LEVER IN FORWARD OR REVERSE, OR WITH PTO SWITCH ON.

TRACTION CONTROL

- TO STOP TRACTOR MOTION, FULLY DEPRESS CLUTCH/BRAKE PEDAL.
- ON HYDROSTATIC DRIVE TRACTORS, MOVEMENT OF TRACTION LEVER FROM NEUTRAL, IN EITHER DIRECTION, INCREASES GROUND SPEED.

TO OPERATE PTO CLUTCH

- THE OPERATOR MUST BE IN THE SEAT.
- TO ENGAGE PTO, SLIDE PTO SWITCH DOWN & LIFT UP.
- TO DISENGAGE PTO, PUSH PTO SWITCH DOWN.

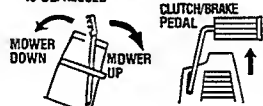


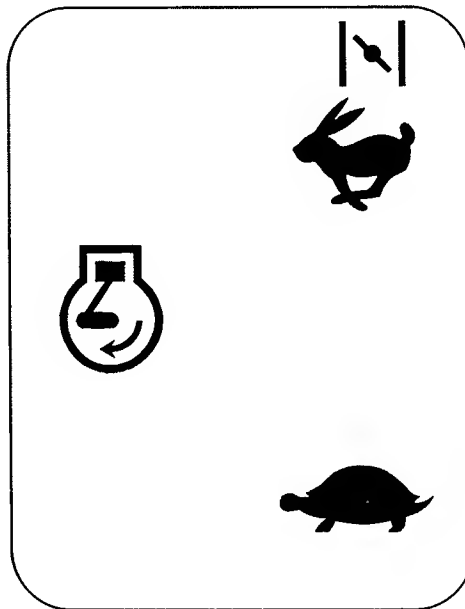
TO SET PARKING BRAKE

- PULL KNOB OUT WHILE CLUTCH/BRAKE PEDAL IS DEPRESSED
- RELEASE CLUTCH/BRAKE PEDAL WHILE HOLDING KNOB

TO RELEASE PARKING BRAKE (P)

- DEPRESS CLUTCH/BRAKE PEDAL
- PUSH KNOB IN WHILE CLUTCH/BRAKE PEDAL IS DEPRESSED





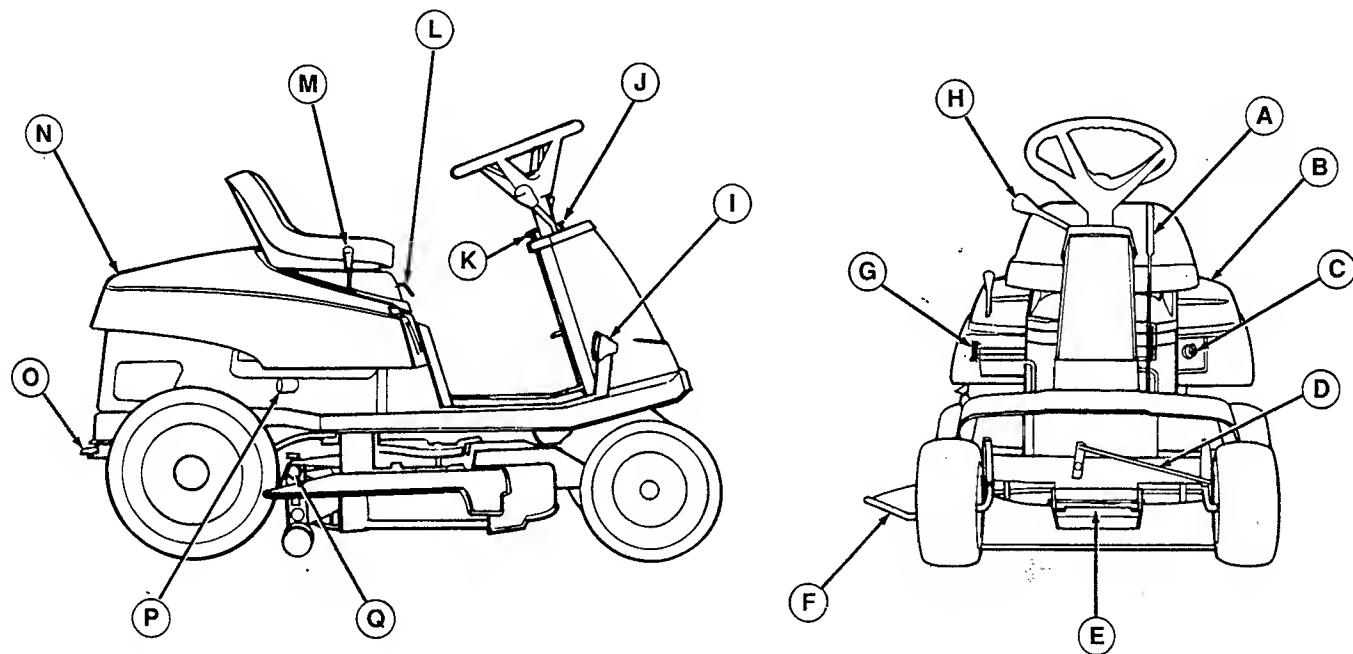


Figure 1. Rider Features

ITEM	NAME	FUNCTION
A	Mower Lift Lever	Raises mower into transport position. Pull back slightly on lever to turn Dial-A-Cut™ Control (K).
B	Fuel Tank	2 gal. (7.6 L.) see-through tank for fuel level reading.
C	Ignition Switch	Starts and stops engine.
D	Auto-Levelling™ Rod	Allows mower hitch (E) to raise and lower around very tight corners while mower remains level.
E	Mower Hitch	Quick-hitch system allows easy removal of mower and other attachments.
F	Mower Deflector	Deflector is a necessary safety device to control objects thrown from the deck. Never mow with your rider without the deflector in place.
G	Electric Clutch (PTO)	Controls electric clutch for attachments. Slide down and pull up to engage clutch, push down to disengage.
H	Ground Speed Control Lever	Controls ground speed and direction. On gear models, depress clutch/brake pedal (I) and shift forward for mowing speeds or transport speeds (see figure 2). Depress clutch/brake and shift rearward for reverse travel. On hydro models, moving lever farther from neutral increases ground speed in forward and reverse direction.
I	Clutch/Brake Pedal	On gear models, depress slightly to declutch drive belt and continue depressing to engage brake. Push all the way down to footrest to engage parking brake knob (J). On hydro models, use the pedal to return shift lever to neutral from forward direction and apply the brake (do not use pedal to shift). Push all the way down to footrest to engage parking brake knob (J). (NOTE: Shift lever does not return to neutral from reverse.)
J	Parking Brake Control Knob	Engages parking brake. Depress clutch/brake pedal fully and pull up knob. To disengage brake, depress pedal and push knob down.
K	Dial-A-Cut™ Control	Adjusts height of mower cut. Pull back slightly on mower lift lever (A) to relieve pressure, and turn clockwise to raise mower cutting height or counter-clockwise to lower cutting height. Cutting height scale is on quadrant at base of lift lever (A). Scale is numbered 1 thru 4, with 4 representing the highest cutting height.
L	Seat Adjustment Lever	Automotive-style lever to allow seat to slide forward and backwards.
M	Engine Throttle/Choke Lever	Push forward to increase engine RPM. Push all the way forward for choke position.
N	Seat Deck	Lightweight polymer-alloy deck lifts up for easy access to engine compartment for service and maintenance. (See page 10 for engine compartment.)
O	Drawbar	For use with utility carts or rear-mounted attachments, such as the Twin Bag Grass Catcher.
P	Engine Muffler	Exhausts hot air to the right side away from the fuel tank. Use caution around the heat shields and muffler until hot surfaces cool after operation.
Q	Mower Levelling Nut	Allows for the accurate side-to-side levelling of mower deck.

Figure 1. Rider Features

*2394

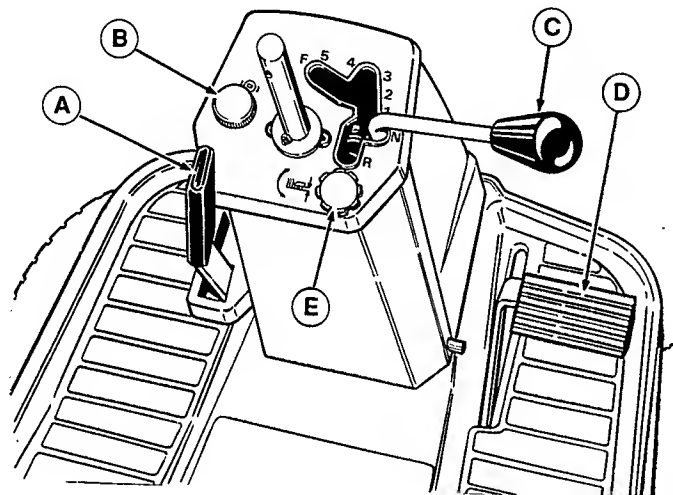
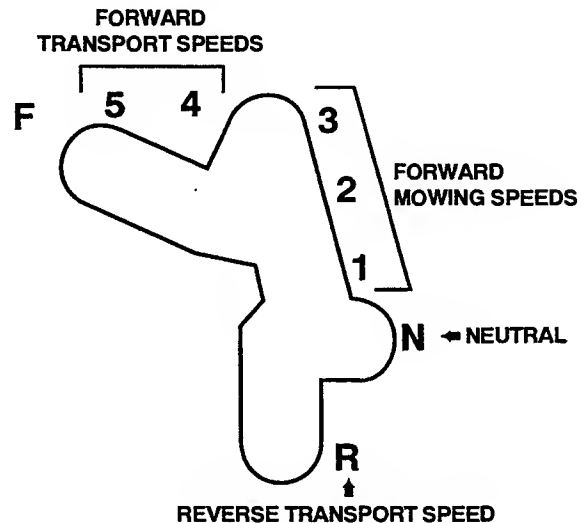


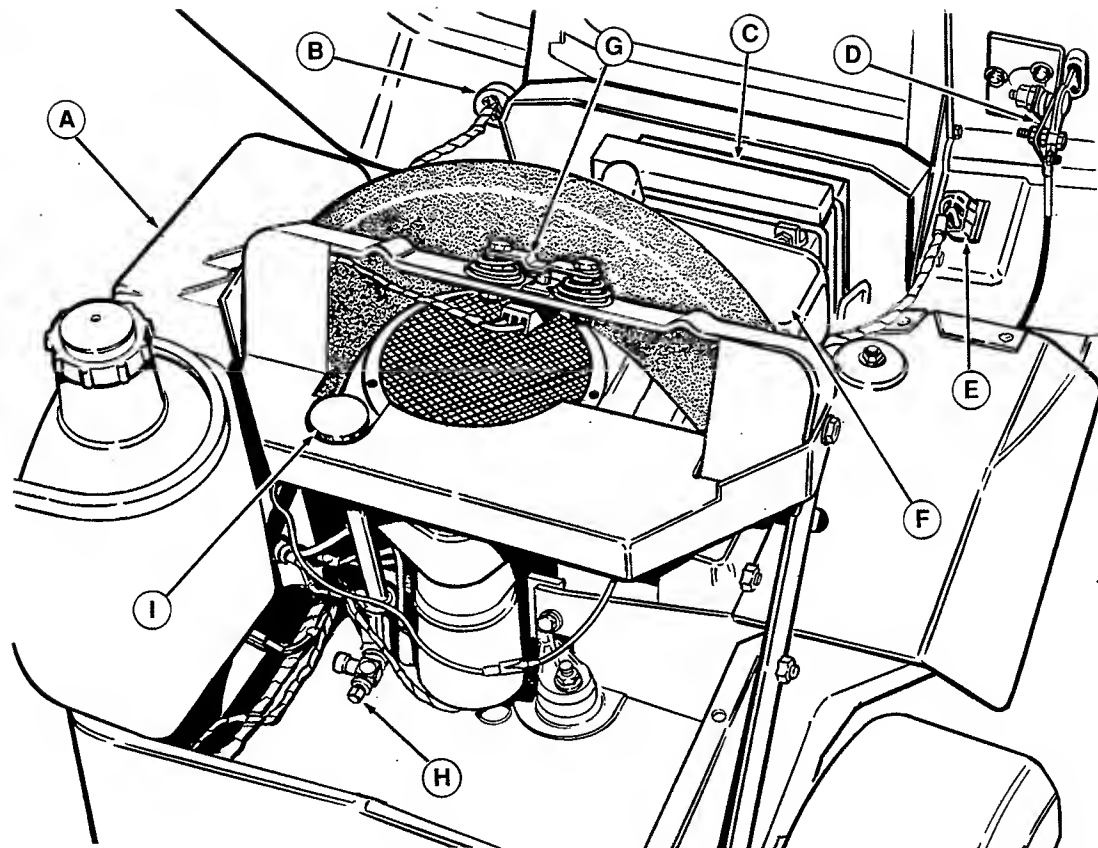
Figure 2. Dash Controls (Shown with steering wheel removed)



NOTE: Gear model shown. On hydro models, the farther the shift lever is moved from neutral position, the faster the ground speed.

ITEM	NAME	FUNCTION
A	Mower Lift Lever	Raises mower into transport position. Pull back slightly on lever to turn Dial-A-Cut™ Control (E).
B	Parking Brake Control Knob	Engages parking brake. Depress clutch/brake pedal fully and pull up knob. To disengage brake, depress pedal and push knob down.
C	Ground Speed Control Lever	Controls ground speed and direction. On gear models, depress clutch/brake pedal (I) and shift forward for moving speeds or transport speeds (see figure 2). Depress clutch/brake and shift rearward for reverse travel. On hydro models, moving lever farther from neutral increases ground speed in forward and reverse direction.
D	Clutch/Brake Pedal	On gear models, depress slightly to declutch drive belt and continue depressing to engage brake. Push all the way down to footrest to engage parking brake knob (J). On hydro models, use the pedal to return shift lever to neutral from forward direction and apply the brake (do not use pedal to shift). Push all the way down to footrest to engage parking brake knob (J). (NOTE: Shift lever does not return to neutral from reverse.)
E	Dial-A-Cut™ Control	Adjusts height of mower cut. Pull back slightly on mower lift lever (A) to relieve pressure, and turn clockwise to raise mower cutting height or counter-clockwise to lower cutting height. Cutting height scale is on quadrant at base of lift lever (A). Scale is numbered 1 thru 4, with 4 representing the highest cutting height.

Figure 2. Dash Controls



ITEM	NAME	DESCRIPTION
A	Fuel Tank	2 gal. (7.6L) see-through tank for fuel level reading.
B	Ignition Switch	Starts and stops engine.
C	Battery	12 volt, 340 amp battery recharged by engine alternator.
D	Throttle/Choke Cable	Controls engine speed and choke position. See Engine Manual for adjustment.
E	Electric Clutch (PTO) Switch	Controls electric clutch for attachments. Slide down and pull up to engage clutch, push down to disengage.
F	Air Filter	See Engine Manual for maintenance instruction.
G	Seat Switch	Safety interlock switch to prevent travel or mowing without operator.
H	Oil Drain	Attach clear plastic tube to drain outlet and open valve to drain oil.
I	Oil Fill/Dipstick	Turn and remove to check or add oil. See Engine Manual for dipstick instruction.
Not Shown	Fuel Filter	In-line filter for straining particles in fuel lines and fuel tank.

Figure 3. Engine Compartment

SAFETY INTERLOCK SYSTEM

Your gear or hydro rider is equipped with an "Operator Present" safety system that will automatically shut the engine off when the operator leaves the seat with the transmission lever in gear or electric clutch engaged. On hydro models, the parking brake must be set in order for operator to leave seat with engine running. Once the engine has stopped, the electric clutch switch must be turned off after operator returns to seat in order to start the engine.

Make sure that there is 1/8" clearance between switch activator (C) and switch plunger (B).

On hydro models, the clutch/brake pedal (D, figure 2) must be fully depressed to start engine.



WARNING

If the rider does not pass the test, do not operate rider. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety system.

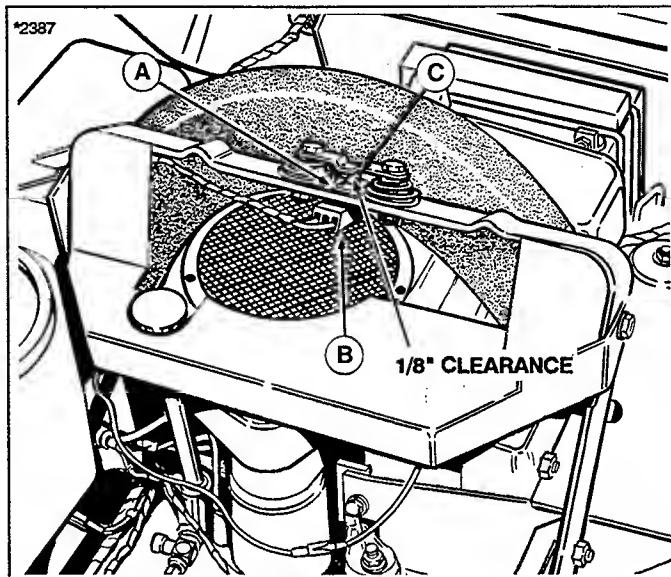


Figure 4. Safety Interlock Switch

A. Switch

B. Harness Plug

C. Switch Activator

Seat Switch Tests

Check the seat switch (A, figure 4) every fall and spring with the following four tests.

Test 1 — Engine should NOT crank if:

- A. Seat not occupied or;
- B. Transmission lever out of neutral, or;
- C. Electric clutch switch engaged, or;
- D. Clutch/brake pedal not depressed (hydro models only).

Test 2 — Engine should crank if:

- A. Seat is occupied, and;
- B. Transmission lever in neutral, and;
- C. Electric clutch switch disengaged, and;
- D. Clutch/brake depressed (hydro models only).

Test 3 — Engine should shut off if:

- A. Operator rises off seat with transmission lever in gear, or;
- B. Operator rises off seat with electric clutch engaged, or;
- C. If operator returns to seat before engine stops, the engine will restart and electric clutch will re-engage, or;
- D. Operator rises off seat without clutch/brake pedal depressed or without parking brake applied (hydro models only).

Test 4 — Electric clutch will disengage if:

- A. Operator rises off seat with engine running.
- B. If operator returns to seat before engine stops, the engine will resume speed and electric clutch will re-engage.

OPERATION ON SLOPES



WARNING

Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet in a travel distance of ten feet. When operating on slopes that are greater than 15 percent (8.5°) but less than 30 percent, use front counterweight. In addition to front counterweight, use extra caution when operating on slopes with rear-mounted grass catcher.

To safely mow on slopes, perform the following common-sense test to determine if slope is too steep for rider use:

1. Try to back directly up the slope. If rider easily climbs slope in reverse, rider can safely be used to mow slope by going directly up and down the face of the slope. **DO NOT MOW ACROSS THE FACE OF SLOPES OVER 15%, ONLY MOW UP AND DOWN.**
2. If rider fails to climb slope in reverse, do not use rider to mow slope. Use push mower and follow safety guidelines in Operator's Manual for push mower.
3. Do not start or stop on slopes when mowing up and down the face of slopes.

CHECKS BEFORE STARTING



WARNING

Never add gasoline when engine is running.



CAUTION

Never use gasoline containing METHANOL, gasohol containing more than 10% ethanol, gasoline additives, premium gasoline, or white gas because engine/fuel system damage could result.

1. Check that gas tank is at least 3/4 full to avoid refueling.
2. Check engine oil level and add if necessary. Refer to engine Owner's Manual for recommendations.
3. Make sure either mower deflector or grass collection system is in place.
4. Check for loose nuts, screws, bolts, oil leaks, gasoline leaks, etc.
5. Make sure the mower is in desired cutting height.
6. Check that the ground speed control lever is in Neutral position.

STARTING AND STOPPING



WARNING

Never allow passengers to ride on the unit.

1. Before using this mower for the first time, the owner should operate in an open area, without mowing, to become accustomed to the unit. The left side of the mower can be used to trim close to objects in the lawn. Read "Operation on Slopes", page 14.
2. Make sure electric clutch is disengaged and transmission control lever is in neutral. On hydro models, depress the clutch/brake pedal or apply the parking brake.
3. For cold starts, push engine speed control into choke position.

For warm starts, set engine speed control at 1/2 throttle.
4. Turn the key to start and release when engine starts. Move lever out of choke position as engine warms.

5. Make sure desired direction is clear of objects, people and animals.
6. Release the parking brake.
7. On gear models, depress the clutch pedal and select gear range to travel. Always depress clutch pedal to change gear selection.

On hydro models, release the clutch pedal, then shift the ground speed control lever into forward or reverse gates. In the forward gate, choose between mowing speed quadrant or transport speed quadrant (refer to figure 2, page 8). Do not depress clutch pedal to change mowing or transport speed.

8. Place engine speed control lever to full throttle, especially if mowing thick grass. Using full throttle will also ensure that battery will be recharging. Use lower forward speed gate for mowing and upper speed gate for transport only. Ground speed can be controlled by selecting different gears (on gear models) or by moving the ground speed control lever forward or backwards (hydro models).

(continued on next page)

9. Lower mower from transport position. Use the electric clutch switch to engage mower.
10. Select the appropriate ground speed for conditions. If the terrain is rough, hilly or sloping, drive slowly. You should also drive slowly to cut thick grass.
11. Use the lower ground speed to slow down for turns or to trim around objects, then increase speed. To stop, depress the clutch/brake pedal and return the gear shift lever to neutral (gear models). On hydro models, shift lever is returned to neutral from forward speed gates.
12. Before leaving operator's position, set the parking brake and disengage the electric clutch. (The parking brake is shown set in figure 5.) Set the engine speed control to 1/2 throttle. Turn the key to OFF and remove it. Wait for all moving parts to stop.
13. Clean all dirt and grass from the mower and rider. Be sure to clean the engine compartment. Allow engine to cool before touching engine parts or heat shields around muffler.

CLUTCH/BRAKE PEDAL OPERATION

Refer to figure 5. Depressing pedal from position A to B disengages transmission drive belt and applies the rider brake. Parking brake is applied at position B when parking brake control knob (C) is pulled up with pedal fully depressed.

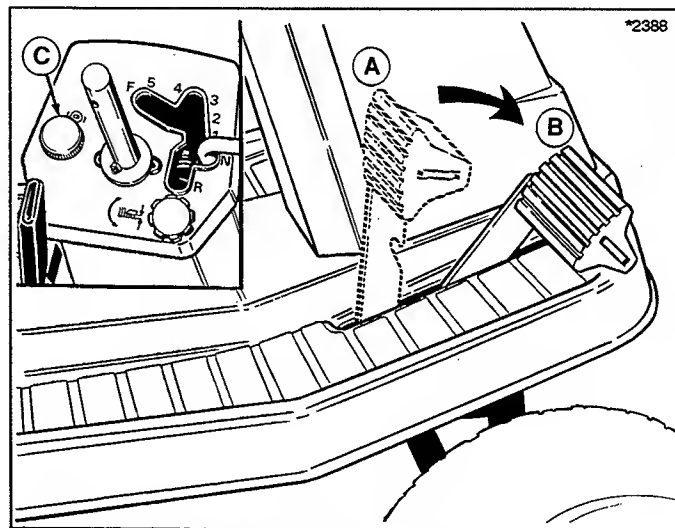


Figure 5. Clutch/Brake/Parking Brake Pedal

PUSHING THE RIDER BY HAND (Hydro Models)

The release lever is located under the rear (righthand) rider frame above the transmission.

To push the rider by hand, transmission release lever must be in the rearward position. Move lever completely forward to engage transmission in "drive" position.

NOTE: DO NOT TOW RIDER! Damage may result to transmission.

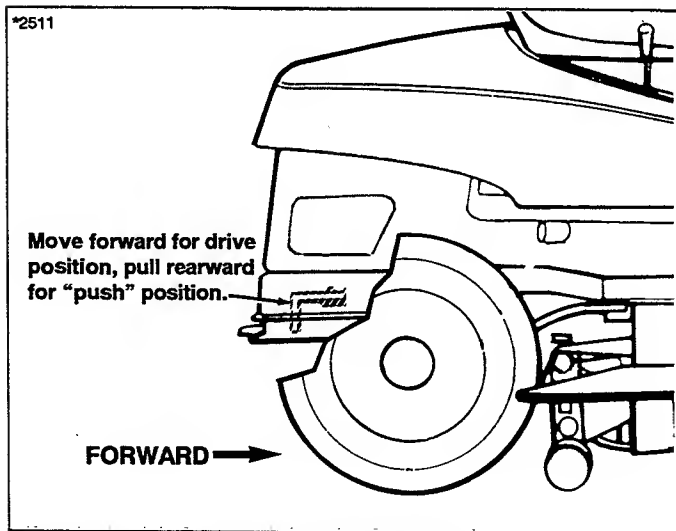


Figure 5A. Hydro Transmission Release Lever

Mower Operation

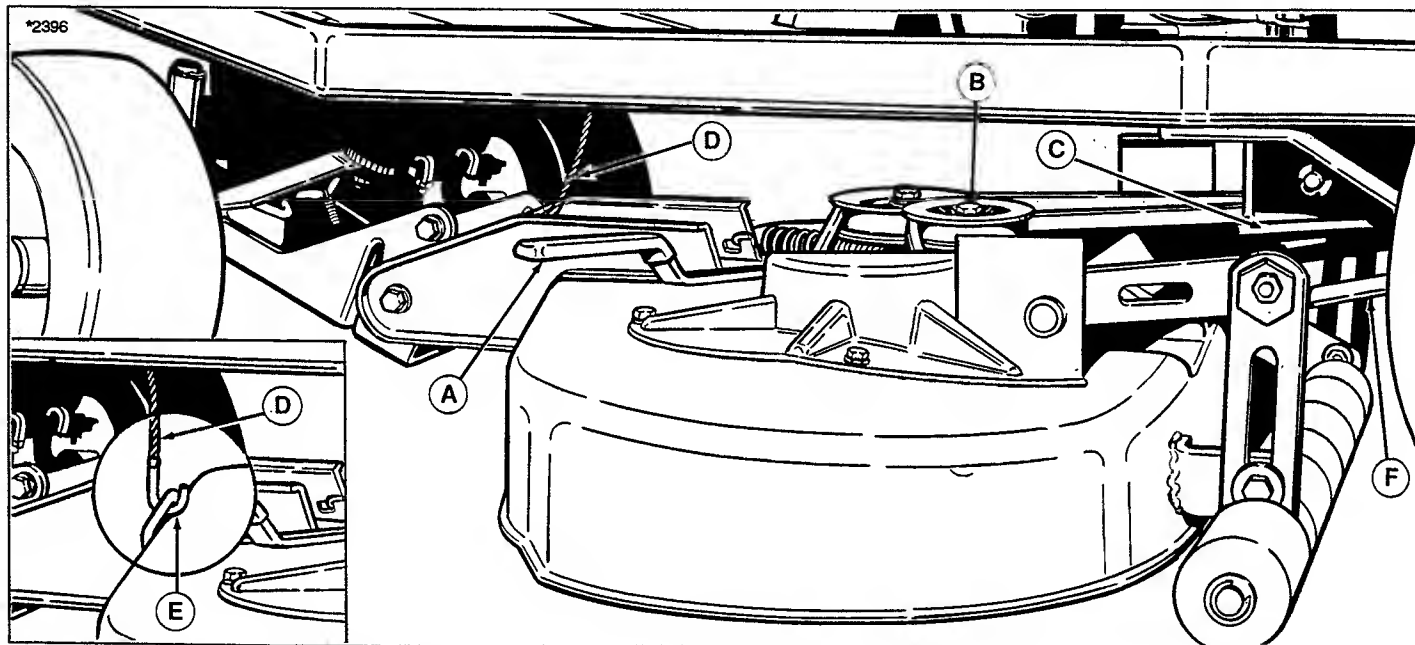


Figure 6. Mower Removal (34" mower shown)

A. Idler Pulley Arm

D. Lift Cable

B. Idler Pulley

E. Lift Hook

C. Electric Clutch Pulley

F. Rear Trailing Arms

MOWER REMOVAL & INSTALLATION

1. Park rider on a level surface. Turn off electric clutch switch and engine then apply parking brake. Prop up front of mower and move mower lift lever completely forward to lower mower from transport position. Make sure Dial-A-Cut™ control is in the lowest cutting position.
2. On left hand side of 34" mower, push idler pulley arm (A, figure 6) to relieve belt tension. On right hand side of 30" mower, pull idler pulley arm (A, figure 6) to relieve belt tension.
3. With belt tension relieved, remove belt from idler pulley (B) and electric clutch pulley (C). Removing belt relieves the tension on the front hitch assembly.
4. With lift lever down, remove lift cable (D) from mower hook (see inset illustration). Make sure the Dial-A-Cut™ control is set to the lowest setting.
5. Remove mower hitch (B, figure 7) from rider hitch brackets (C) by pulling spring-loaded lever (A) forward and lifting up on hitch. Place mower hitch on ground.

Note: For easier mower removal and installation, rear trailing arms (F, figure 6) can be removed by removing spring clips and clevis pins.

6. Turn wheels fully left and remove mower from underneath right hand side of rider.

7. To install mower, reverse above steps. Check mower belt pattern as shown in figure 8. Make sure that the mower lift cable is installed with hook toward the rear (E, figure 6) and the rear trailing arms (F, figure 6) are positioned above rear torsion bar. (Also see D, figure 25.)

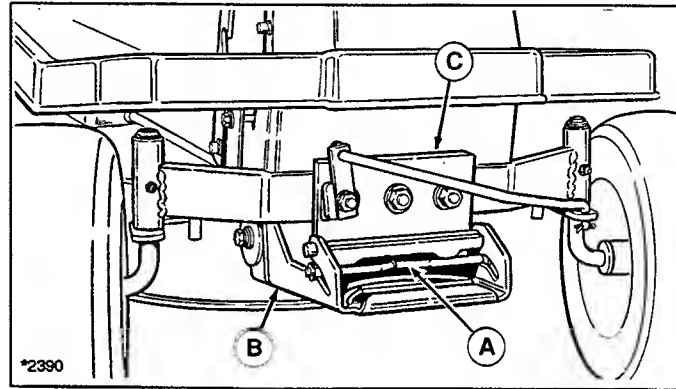
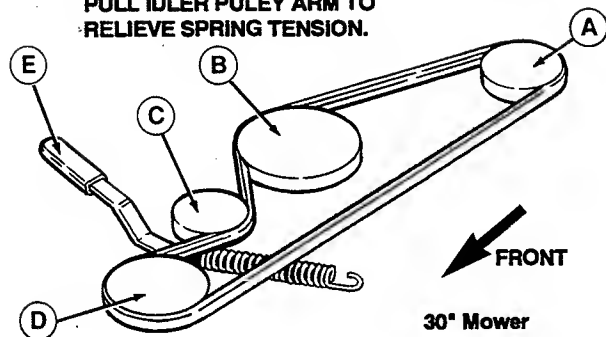


Figure 7. Mower Hitch
A. Lever
B. Mower Hitch
C. Rider Hitch Brackets

**PULL IDLER PULLEY ARM TO
RELIEVE SPRING TENSION.**



*2391

**PUSH IDLER PULLEY ARM TO
RELIEVE SPRING TENSION.**

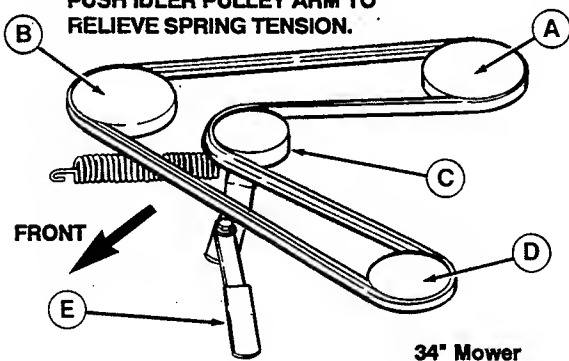


Figure 8. 30" & 34" Belt Pattern
 . Electric Clutch Pulley
 . Arbor Pulley (30" mower)
 . Right Arbor Pulley (34" mower)
 . Idler Pulley
 . Front Idler Pulley (30" mower)
 . Left Arbor Pulley (34" mower)
 . Idler Pulley Arm

MOWING PATTERN & TIPS

For the first use of the mower choose a smooth level area. Cut long straight strips overlapping slightly.

The size and type of area to be mowed determines the best mowing pattern to use. Obstructions such as trees, fences and buildings must also be considered. Where possible, make one or two passes in a clockwise direction around the outside of the area to keep the cut grass off fences and walks. The remainder of the mowing should be done in a counterclockwise direction so the clippings are dispersed on the cut area.

Keep in mind the following lawn care and mowing tips:

1. Overmaintenance is as detrimental to your lawn as neglect.
2. Mow when grass is 3-5 inches tall. Don't cut shorter than 2 to 2-1/2 inches. Cut only the top one-third of the grass blade. Cutting below this level can lead to thatch problems. Your mower has an infinitely variable cutting height adjustment that can help you maintain a proper length.
3. For extremely tall grass, set the cutting height at maximum for the first pass, and then reset to the desired height and mow again.
4. Mow often. Short clippings of an inch or less decompose more quickly than longer blades.
5. Keep the blades on your mower sharp for finer clippings.
6. Let grass grow a bit longer when it is hot to reduce heat build-up and protect grass from heat damage.
7. Use slow-release fertilizer for slow, even growth.
8. Don't cover grass surface with a heavy layer of clippings. If this is a problem, consider using a grass collection system and starting a compost pile.
9. Aerate lawn -- in spring, consider renting an aerator which removes cores of soil from the lawn. This increases the speed of clipping decomposition and deep root growth by opening up the soil and permitting greater movement of water, fertilizer and air.
10. Don't over-water -- too much water can encourage disease development.
11. Mow when the grass is dry, preferably in the late afternoon when the temperatures are cooler.
12. Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.
13. For wet grasses, grasses prone to wheel tracking and for collecting clippings:
 - a. Use sharp blades.
 - b. Raise deck 1/4" higher in front than in rear.
 - c. Maximum engine speed.
 - d. Clean deck of built-up material/caked-on grass.
 - e. Check for free movement of mower idler pulley.
 - f. Use slow ground speed.
14. For dry conditions where grass blow-out is a problem:
 - a. Use sharp blades.
 - b. Raise deck flat to 1/8" maximum lower in front.
 - c. Install mulcher front baffle.
 - d. Use 3/4 engine speed.
 - e. Clean deck of built-up material/caked-on grass.

MULCHING MOWER OPERATION

Mulching

Mulching consists of actually cutting and recutting clippings into tiny particles and blowing them into the lawn. These tiny particles decompose rapidly into by-products your lawn can use. Under proper conditions, your mulching mower will virtually eliminate noticeable clippings on the lawn surface.

Keep in mind these mulching tips:

- a. Use mulching mower or mulcher kit without shredders for grass mulching.
- b. Install shredders for leaf shredding.
- c. Use maximum engine speed.
- d. Raise height of cut if excessive power is used.
- e. Must use sharp blades. Do not use lift tabs or high lift blade when mulching.
- f. Adjust to lower ground speeds in heavy grass or if windrow is present.
- g. Clean deck of built-up material/caked-on grass.
- h. Check for free movement of mower idler pulley.

Clippings Are Beneficial

A common misconception about clippings is that they automatically lead to thatch. However, clippings produced by the above methods actually contribute to a healthy lawn because they:

1. Act as a safe, non-polluting and inexpensive fertilizer that nourishes your lawn. Fresh cut blades are a rich source of nitrogen which is essential to lush growth. And one garbage bag of clippings contains about 1/4 lb. of usable organic nitrogen.
2. Reduce the evaporation of water from your lawn.

3. Provide a cushioning layer to reduce lawn wear.
4. Moderate soil temperature.
5. Save money normally spent on trash bags.

Mowing Conditions

The best mulching results from mowing when lawn is dry and grass blades are not over 5" long. Follow these guidelines for best results:

- a. Do not use the mower as a mulching mower during the first two or three mowings in the spring. The long grass blades, quick growth, and often wetter conditions are more suitable for side-discharge (broadcasting) or grass bagging operation.
- b. Avoid mulching after rain or heavy dew. It may be better to mow later in the day or early evening when lawn is drier.
- c. Change the mowing pattern each time.
- d. If mulching baffles are removed, the original deflector must be in operating position for safe side-discharge mowing.

How Much Grass To Cut Off

Removing too much grass height in one cutting may result in an unsatisfactory cut: windrowing, clumping, or uneven dispersal of clippings may result. It is best to mow when the grass is between 3-5" tall, although this will depend on your personal preference for lawn appearance. A good rule to follow is to cut only the top one-third of the grass blade at a time (maximum of 1-1/2"). Cutting more off the grass blade, particularly in wet spring conditions, can lead to thatch problems.

Engine Speed & Ground Speed

Use full engine throttle matched with a slower ground speed so that clippings will be finely cut. A better cut may result from

cutting the same area in two passes, each time cutting only 3/4" of grass blade. Short clippings of 1" or less decompose more quickly than longer blades.

NOTE: When mulching under heavy cutting conditions, a rumbling sound may be present and is normal.

The Proper Equipment

Always keep the mower blades sharp and balanced. Blades should be sharpened at the beginning of every mowing season. If the tips of grass blades brown after cutting, this may be a sign of dull blades tearing, rather than cutting, the grass blades.

Keep the underside of the mower deck and baffles clean so that clippings are properly circulated, chopped, and discharged back into the lawn.

The Best Combination

We recommend that you experiment with the height of cut position and tractor ground speed that will give you the best cut. Start with a higher cutting height and try increasing lower settings until you find a cutting height that is matched to your mowing conditions and preferences. Since mulching requires more horsepower than side-discharging, using a slower ground speed is important for proper mulching operation.

Leaf Shredding (Mulcher Kit Only)

Patented Shredder Blades (A, figure 9) virtually eliminate raking leaves. Up to 512 cutting edges pulverize leaves into tiny particles, which quickly and naturally decompose into food for your lawn. Shredder Blades must be removed when you choose to mulch grass clippings.

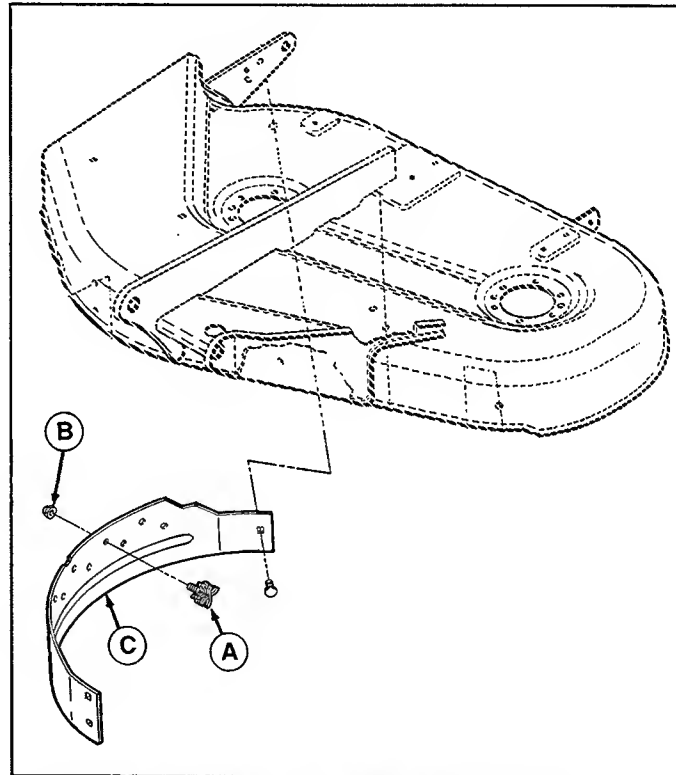


Figure 9. Shredder Blade - 34" Mower Shown
 A. Shredder Blade
 B. Locknut
 C. Discharge Baffle

MOWER CUTTING HEIGHT ADJUSTMENT

Mower cutting height can be changed by turning the Dial-A-Cut™ control (C, figure 10). Turn the control knob clockwise to raise the mower cutting height and counterclockwise to lower mower. Pulling back slightly on the mower lift lever (A) will take mower weight off the control knob and allow for easier turning.

Pull back on the mower lift lever (A) and move into the transport gate on the quadrant (B) as shown in figure 10 to place mower in the transport position.

The exact cutting height of the mower blades will depend on ground contour. A cutting height scale is provided on the quadrant (B) and is intended to be for reference only. Scale is numbered 1 thru 4, with 4 representing the highest cutting height. Align the front edge of the mower lift lever with the desired cutting height number. The exact cutting height of the mower blades will depend on ground contour.

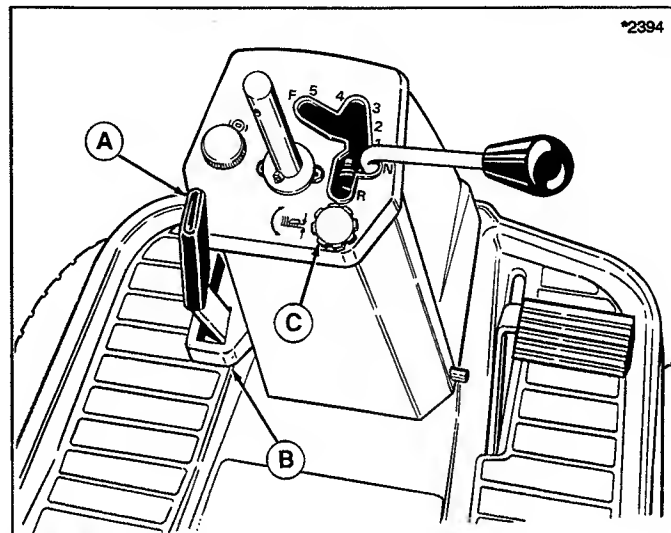


Figure 10.

A. Mower Lift Lever

B. Quadrant

C. Dial-A-Cut™ Control

Normal Care

Schedule

Safety Items	See	Before First Use	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Spring & Fall
Check safety interlock system.	pg. 12	•					•
Check rider brake pedal operation.	pg. 16	•					•
Check rider brake adjustments.	pg. 46	•					•
Check mower blade stopping time.	pg. 51	•					•
Normal Care Items							
Check rider & mower for loose hardware.		•	•	•			
Check engine oil level.	Eng. Mn.	•	•	•			
Check engine air filter and clean outside of hydro pump.	" "				**•		
Change engine oil.*	" "				**Every 50 hrs.		•
Lubricate rider & mower.	pg. 27-29				**•		
Check tire pressure.	pg. 30				•		
Check battery fluid level.	pg. 30				**•		
Check fuel filter.	pg. 31					•	
Clean battery & cables.	pg. 30					•	
Clean/sharpen blades.	pg. 32				•		
Inspect spark plug(s).	Eng. Mn.					•	

* Change original engine oil after first 5 hours of operation.

** More often in hot (over 85° F: 30° C) weather or dusty operating conditions.

Normal Care

STORAGE (30 Days or More)

1. Run rider engine until it stops from lack of fuel or, use a gasoline stabilizer. This additive, available from your dealer, prevents formation of gum and varnish for up to one year.



WARNING

Never store rider where gasoline fumes may reach an open flame or sparks.



2. Change engine oil. Record the type and weight of oil put in crankcase. See the engine Owner's Manual for recommendations.
3. Remove the spark plug(s). Squirt approximately one ounce (30 ml) of engine oil into engine through spark plug hole. Crank engine a few times to distribute oil and then reinstall the spark plug.
4. Lubricate the rider and mower.
5. Check battery fluid level. Battery life will be extended if it is removed and stored in a cool, dry place, fully charged.
6. Clean rider thoroughly. Touch up exposed metal parts with a good quality paint (obtainable from your dealer) or a light film of grease or oil.

RIDER SEAT DECK CARE

The rider seat deck is made from a polymer alloy for durability and ease of lifting. It will not rust and is flexible enough to resist dents.

To clean, rinse the seat deck off with water to remove particles that may scratch finish. Wash with warm water and soap. For best appearance, seat deck can be waxed with a waxing compound suitable for automotive "clear coat" finishes.

LUBRICATION

1. With an oil can, apply a few drops of oil to points indicated with  in figures 11 through 16.
2. With a grease gun, apply one or two shots of lithium based automotive grease to the grease fittings shown in the following illustrations. ()

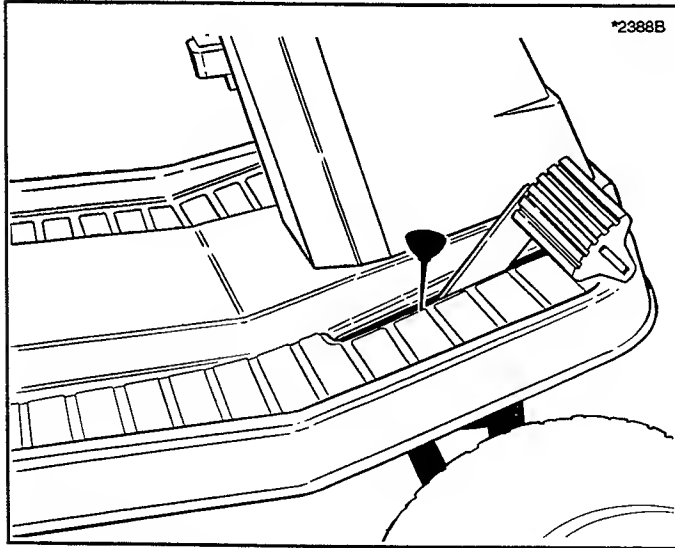


Figure 11. Lubricate Pedal Pivot Point

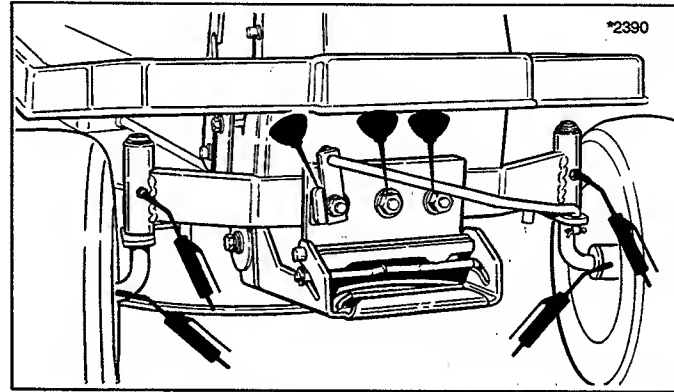


Figure 12. Front Axle Lubrication Points

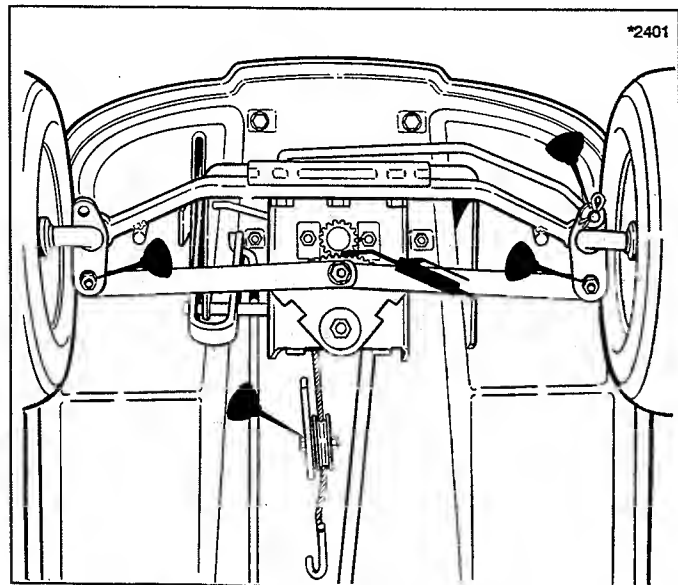


Figure 13. Rider Lubrication Points - Front Half

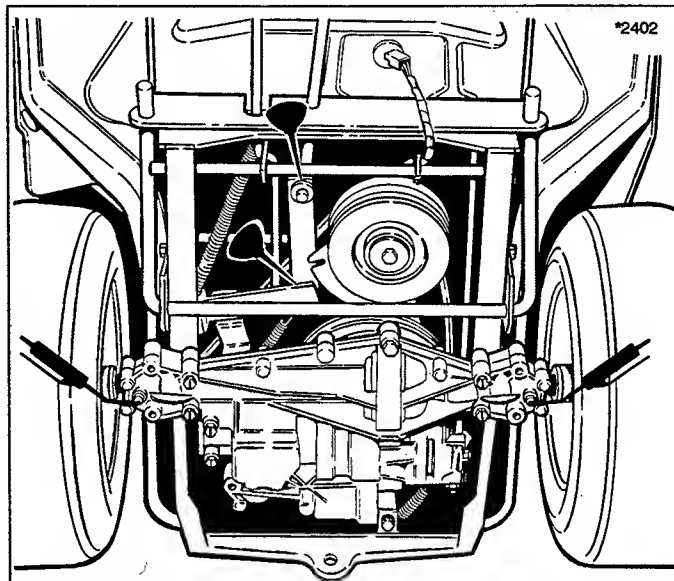


Figure 14. Rider Lubrication Points - Rear Half (Gear model shown)

NOTE: To prevent hard shifting on hydro models, make sure the vertical shift cam is clean and lubricated with lightweight spray lubricant or cleaner.

NOTE: The gear and hydro transaxles are sealed units and do not have a check plug or fill plug.

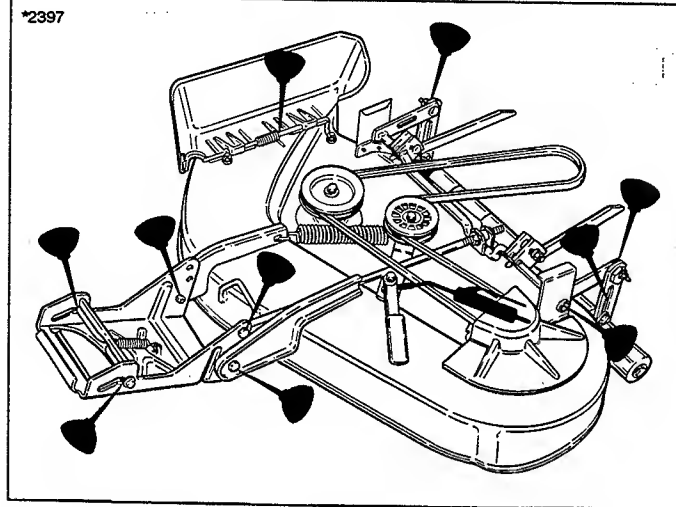


Figure 15. Mower Lubrication Points

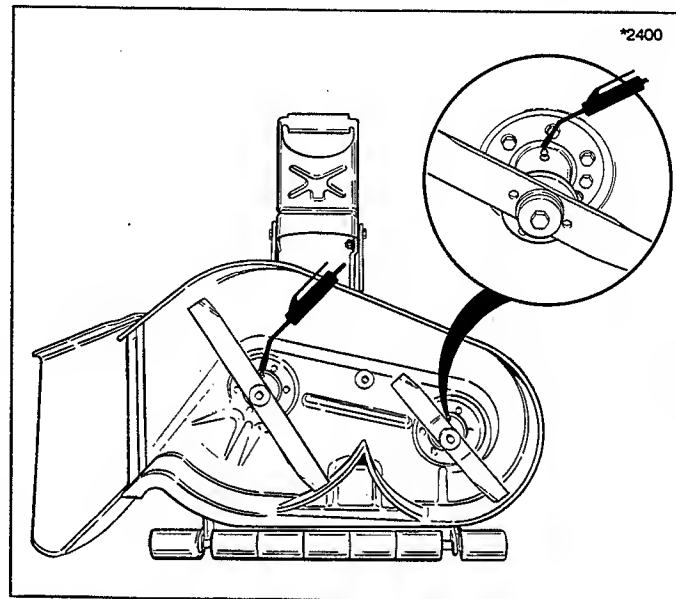


Figure 16. Arbor Lubrication Points (34" Mower)

NOTE: On 30" mower, arbor grease fitting is on topside of deck.

CHECK TIRE PRESSURE

Make sure the air pressure in the front and rear tires is 10 to 12 psi (68-82 kPa). Use a gauge with one-pound markings.

BATTERY MAINTENANCE

WARNING

For your personal safety when removing or installing battery cables, always disconnect the negative cable FIRST and reconnect it LAST. The positive battery terminal can easily be shorted to the rider frame by a wrench or other tool if this is not done.

WARNING

Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.

Check Fluid Level

Check the battery fluid level. Wipe dirt from around the cap then remove the cap. The fluid must be even with the bottom of the split ring. If not, add distilled water. Reinstall the cap. Be sure the cover is in place over positive terminal. Make sure vent tube from battery cap extends beyond battery platform.

Cleaning Battery and Cables.

1. Open engine compartment to locate battery (figure 17). Disconnect the cables from the battery, negative cable first. A positive "+" sign is stamped on the battery next to the positive terminal.
2. Remove the battery holddown strap (D, figure 17). Separate the battery cap from the vent tube (C). The vent tube should remain routed through the frame. Remove the battery.

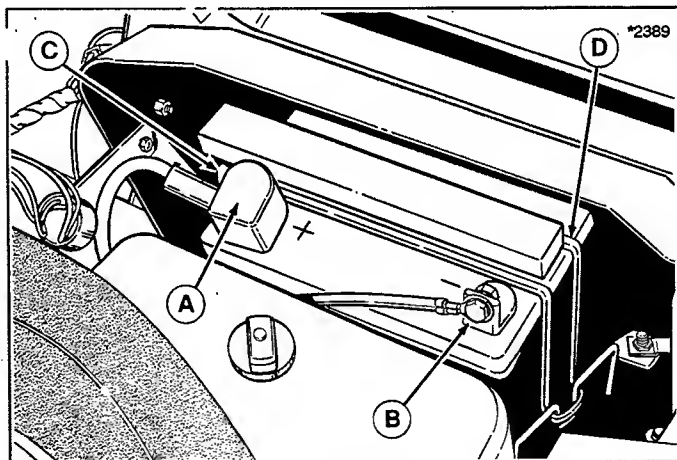


Figure 17. Battery

A. Positive Terminal
B. Negative Terminal

C. Vent Tube
D. Holddown Strap

3. Clean the battery terminals and cable clamps with a wire brush.
4. Scrub the battery, cable and battery compartment with baking soda and water.
5. Reinstall battery and holddown strap. Reinstall vent tube to battery cap.
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with petroleum jelly or approved terminal spray coating. Be sure to slide cover over positive terminal.

NOTE: When installing battery, make sure throttle cable is routed behind battery and under battery cables to prevent contact with battery cables or terminals.

CHECKING HYDROSTATIC TRANSMISSION AND COOLING FAN



CAUTION

Clean outside surfaces of transmission. Dirt build-up can cause overheating and transmission damage.

Hydrostatic transmission is filled with oil upon manufacture. No further service is required.

CHECK FUEL FILTER



WARNING

Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. Do not spread hose clamps further than necessary. Make sure that clamps grip hose firmly over filter after installation.

The fuel filter is located in fuel line in engine compartment. A dirty or clogged fuel filter will cause erratic engine operation or prevent engine from running. Replace as follows:

1. Place a container below fuel filter to catch gasoline.
2. Using a pliers, open and slide hose clamps from fuel filter.
3. Remove hoses from filter.
4. Install new filter in proper flow direction in hoses. Secure by reclamping with hose clamps.
5. If new filter is not available, remove old filter, drain gasoline, and allow to dry. Inspect screen for particles. Tap filter or blow air through filter to remove particles. Replace filter and check if engine operation improves.

SERVICING THE MOWER BLADES



WARNING

Do not handle the blade with bare hands. Do not touch the cutting edge.

Sharpening & Balancing

1. To remove a blade, wedge a wood block between blade and housing to prevent rotation. Then, turn capscrew counterclockwise to remove.
2. Use a file to sharpen blade to a fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged it should be replaced.
3. To balance the blade, use a balancing machine or the following procedure. Drive a small nail into the side of a workbench or other vertical surface. Lubricate the nail with a drop of oil. Center the blade center hole on the nail. A balanced blade will remain level. File material off heavier end of blade until it is balanced.

Blade Installation

1. See figure 18. Install the blade(s) with the tabs pointing upward. Install the spline washer (A), cup washer (B), and capscrew (C). Be sure the splines on the spline washer are engaged with the shaft splines. Be sure cup washer is installed with the concave side up.
2. To tighten the capscrew, wedge a wood block between blade and housing to prevent blade from turning. Torque the capscrew to 50 to 70 ft. lbs. (68-76 Nm).

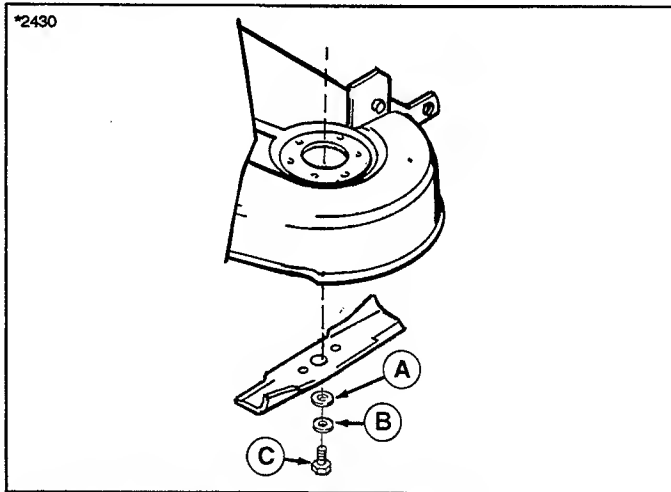


Figure 18. Blade Hardware - 34" Deck Shown
A. Spline Washer C. Capscrew
B. Cup Washer

CONTENT OF SECTION

This section of the manual provides troubleshooting and repair instructions for the more common and easily corrected problems. For other problems, it is recommended that you contact your dealer.



WARNING

Perform maintenance on the rider or mower only when the engine is stopped and the parking brake engaged. Always remove the ignition key before beginning the maintenance to prevent accidental starting.

Problem

Cause/Remedy

- | Problem | Cause/Remedy |
|---------------------------------------|--|
| 1. Engine will not turnover or start. | <ul style="list-style-type: none">A. Transmission lever not in neutral-start position. Shift into neutral.B. Electric clutch switch in ON position. Place in OFF position.C. Clutch/brake pedal not depressed (hydro models only).D. Out of fuel. Allow engine to cool then refill the fuel tank.E. Engine flooded. Move throttle control out of CHOKE position.F. Circuit breaker tripped. Wait one minute for automatic reset. Replace if defective (see your dealer).G. Battery terminals require cleaning. See Normal Care section.H. Battery discharged or dead. Recharge or replace.I. Wiring loose or broken. Visually check wiring & replace broken or frayed wires. Tighten loose connections.J. Solenoid or starter motor faulty. Repair or replace.K. Safety interlock switch or module faulty. Replace if needed (see your dealer.)L. Spark plug(s) faulty, fouled or incorrectly gapped. Clean and gap or replace. See engine manual.M. Water in fuel. Drain fuel & refill with fresh fuel.N. Old stale gas. Drain fuel & replace with fresh fuel. |

Troubleshooting

Problem	Cause/Remedy
2. Engine starts hard or runs poorly.	<ul style="list-style-type: none">A. Fuel mixture too rich. Clean air filter. Check choke adjustment (engine speed control). See engine manual.B. Carburetor adjusted incorrectly. See engine manual.C. Spark plug(s) faulty, fouled, or incorrectly gapped. Clean and gap or replace. See engine manual.
3. Engine knocks.	<ul style="list-style-type: none">A. Low oil level. Check/add oil as required.B. Using wrong grade oil. See engine manual.
4. Excessive oil consumption.	<ul style="list-style-type: none">A. Engine running too hot. Clean engine fins, blower screen and air cleaner.B. Using wrong weight oil. See engine manual.C. Too much oil in crankcase. Drain excessive oil.
5. Engine exhaust is black.	<ul style="list-style-type: none">A. Dirty air filter. Clean air filter. See engine manual.B. Check engine speed control adjustment (choke). See engine manual.
6. Engine runs, but rider will not drive.	<ul style="list-style-type: none">A. Ground speed control lever in neutral. Shift in forward or reverse.B. Drive belt is broken. See "Drive Belt Replacement" section.C. Hydro transmission release lever in the "PUSH" position. Push lever forward toward the front of the rider. See figure 5A, page 17.D. Make sure parking brake is OFF.
7. Rider drive belt slips.	<ul style="list-style-type: none">A. Pulleys or belt greasy or oily. Clean as required.B. Belt stretched or worn. Replace with correct belt.C. Idler pulley spring stretched or broken. Replace spring.

Problem	Cause/Remedy
8. Brake will not hold.	<p>A. Clutch/brake rod is incorrectly adjusted. Refer to "Adjustments" section.</p> <p>B. Brake pads on transaxle worn. See your dealer.</p>
9. Rider steers hard.	<p>A. Improper tire inflation. Check and correct.</p> <p>B. Spindle bearings dry. Grease spindles. See Normal Care - Lubrication section.</p> <p>C. Steering gears require lubrication. See Normal Care - Lubrication section.</p>

TROUBLESHOOTING (MOWER)

1. Mower will not raise.	A. Lift cable not properly attached or damaged. Attach or repair.
2. Mower cut is uneven.	<p>A. Mower not leveled properly. See Mower Leveling.</p> <p>B. Rider tires not inflated equally or properly. See Normal Care section.</p>
3. Mower cut is rough looking.	<p>A. Engine speed too slow. Set for three-fourths to full speed.</p> <p>B. Ground speed too fast. Use lower gears.</p> <p>C. Blades dull and require sharpening. See Normal Care section.</p> <p>D. Mower drive belt slipping. Belt oily or worn. Clean or replace belt as necessary.</p> <p>E. Electric Clutch faulty. See your dealer.</p> <p>F. Blades not properly fastened to arbors. See Normal Care section.</p>

Troubleshooting

Problem	Cause/Remedy
4. Engine stalls easily with mower engaged.	<ul style="list-style-type: none">A. Engine speed too slow. Set for 3/4 to full throttle.B. Ground speed too fast. Use lower gear.C. Carburetor not adjusted properly.D. Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height during first pass.E. Discharge chute jamming with cut grass. Cut grass with discharge pointing toward previously cut area.
5. Excessive mower vibration.	<ul style="list-style-type: none">A. Mower blades, arbors, or pulleys are bent. Check and replace as necessary.B. Mower blades are out of balance. Remove, sharpen and balance blades (see Normal Care section).C. Belt installed incorrectly. See "Mower Belt Replacement".
6. Excessive belt breakage.	<ul style="list-style-type: none">A. Bent or rough pulleys. Repair or replace.B. Using incorrect belt. See your dealer.
7. Mower drive belt slips or fails to drive.	<ul style="list-style-type: none">A. Idler pulley spring broken or not properly attached. See your dealer.B. Mower drive belt broken. Replace.

BATTERY REPLACEMENT

A battery too weak to start the engine may not need to be replaced. It may, as an example, mean that the charging system is not working properly or that the battery has lost its charge during storage. First check the fluid level and clean the battery. Have the battery recharged if necessary. To ensure full charging, make sure rider is operated at full throttle. If there is any doubt about the cause of the problem, see your dealer. If you must replace the battery, remove and install the battery as described in "Clean Battery and Cables."

JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

Jump starting is not recommended. First check the battery in "Battery Replacement" above. If jump starting must be done, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cable. Follow exactly the procedure outlined below, being careful not to cause sparks. Refer to figure 19 (page 39).



WARNING

Never expose battery to open flame or electric spark — battery action generates hydrogen gas which is flammable and explosive. Do not allow battery acid to contact skin, eyes, fabrics, or painted surfaces. Batteries contain a sulfuric acid solution which can cause serious personal injury or property damage.



WARNING

Any procedure other than the above could result in: (1) personal injury caused by electrolyte squirting out of the battery vents, (2) personal injury or property damage due to the battery explosion, (3) damage to the charging system of the booster vehicle or the other immobilized vehicle.

Do not attempt to jump start a vehicle having a frozen battery because the battery may rupture or explode. If a frozen battery is suspected, examine all fill vents of the battery. If ice can be seen, do not attempt to start with jumper cables.

NOTE

The positive terminal has a cover. Slide cover away to perform this procedure. Slide cover back over positive terminal for normal operation.

1. Set parking brake.
2. Remove vent cap from both the booster and the discharged batteries. Lay a cloth over the open vent wells on each battery. These two actions help reduce the explosion hazard always present in either battery when connecting a "live" battery to a "dead" battery.
3. Attach one end on one jumper cable to the positive terminal of the booster battery (identified by a red color, "+" or "P" on the battery case, post or clamp) and the other end of same cable to positive terminal of discharged battery.

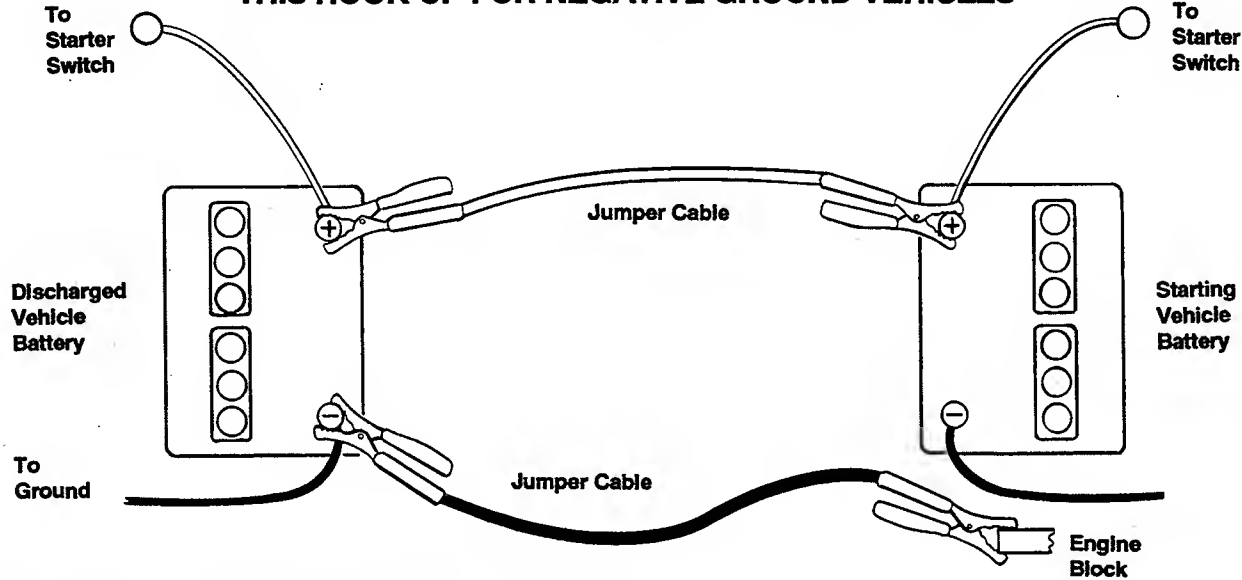
4. Attach one end of the remaining cable to the negative terminal (black color, "-" or "N") of the discharged battery, and the other end to a bare metal surface on the frame of your rider AWAY FROM the battery compartment (do not connect directly to negative post of booster battery). Take care that clamps from one cable do not inadvertently touch the clamps on the other cable. Do not lean over the battery when making the connection.
5. PTO must be off with transmission in neutral or clutch/brake pedal depressed, and seat switch activated.

The rider with discharged battery should now start.

Reverse the jump starting procedure exactly to remove the jumper cables. Then reinstall the vent caps and throw the cloths away as they may have corrosive acid on them.

*1582

THIS HOOK-UP FOR NEGATIVE GROUND VEHICLES



MAKE CERTAIN VEHICLES DO NOT TOUCH

Figure 19. Jump Starting

Troubleshooting

DRIVE BELT REPLACEMENT

Replacement of rider drive belt requires removal of the transmission and carrier frame. Should the drive belt ever fail, see your dealer for replacement.

MOWER BELT REPLACEMENT

34" Mower Drive Belt

1. Mower does not need to be removed to install a new belt. However, for easier access, mower can be removed following steps in "Mower Removal and Installation".
2. If mower is not removed, place mower in low cut position. Push idler pulley arm (A, figure 20) away from you to relieve belt tension. Remove belt from idler pulley (B) and electric clutch pulley (C).
3. Remove the three capscrews (D) securing the left hand arbor cover (E).
4. Remove old belt from arbor pulleys and replace with new belt. Refer to figure 21 for belt pattern. Make sure V-side of belt runs in all arbor pulley grooves and flat side of belt runs against idler pulley.
5. Reinstall the arbor cover and secure with three capscrews.
6. Reinstall mower if removed, and reinstall belt to electric clutch pulley. Push idler pulley arm and reinstall belt around idler pulley.
7. Recheck belt pattern as shown in figure 21 and mower installation.

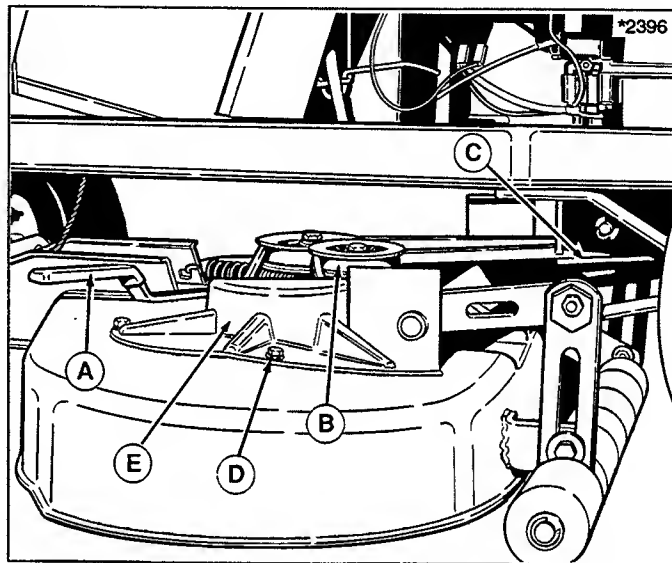


Figure 20.

- A. Idler Pulley Arm
- B. Idler Pulley
- C. Electric Clutch Pulley
- D. Capscrews
- E. Arbor Cover

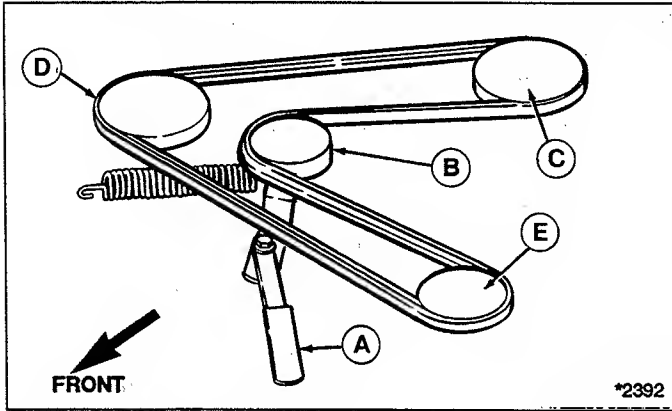


Figure 21. 34" Belt Pattern

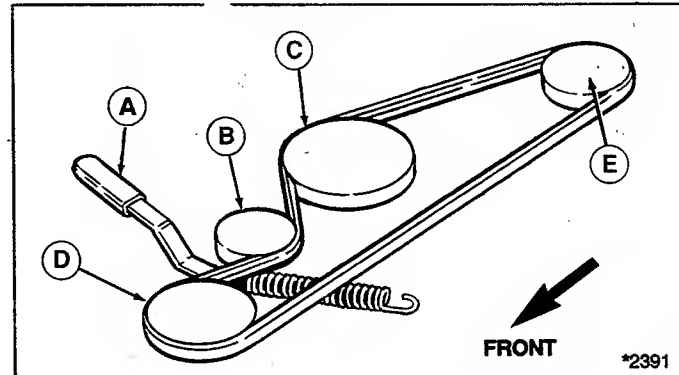
- A. Idler Pulley Arm
- B. Idler Pulley
- C. Electric Clutch Pulley
- D. Right Arbor Pulley
- E. Left Arbor Pulley

Figure 22. 30" Belt Pattern

- A. Idler Pulley Arm
- B. Idler Pulley
- C. Center Arbor Pulley
- D. Front Idler Pulley
- E. Electric Clutch Pulley

30" Mower Drive Belt

1. Mower does not need to be removed to install a new belt. However, for easier access, mower can be removed following steps in "Mower Removal and Installation".
2. If mower is not removed, place mower in low cut position. Pull idler pulley arm (A, figure 22) towards you to relieve belt tension. Remove belt from idler pulley (B) and center arbor pulley (C).
3. Remove belt from front idler pulley (D) and electric clutch pulley (E).
4. Replace old belt with new belt. Make sure V-side of belt runs in all pulley grooves except the idler pulley (B).
5. Reinstall mower if removed, and reinstall belt to electric clutch pulley (E). Recheck belt pattern as shown in figure 22 and mower installation.



Adjustments

MOWER LEVELING



WARNING

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key.

Side-To-Side Leveling

1. Park the tractor on a level surface. Point tires straight ahead.
2. Loosen nut (C, figure 25) so trailing arms are loose. Mower must be resting on rollers with no weight on trailing arms. Transport Height Adjustment should be made after Mower Leveling Adjustment.
3. Place Dial-A-Cut™ mower height adjuster in mid cut position by aligning front edge of mower lift lever with number 2 or 3 on quadrant scale. Make sure mower lift lever is in down position. Make sure that the rear mower rollers (C, figure 23) are on the ground. If not, refer to Transport Height Adjustment procedure on page 45.



CAUTION

Mower blade(s) can cut hands if not protected by gloves. Turn the mower drive belt by hand to rotate blade(s) into position or wear gloves to turn blade(s) by hand. On mulching mower decks, make sure fingers do not become pinched between mower blade and mower lip.

4. Position blade(s) side-to-side and measure distance from outside tip of blade(s) to ground. Measurement should be equal (within 1/8 inch). For adjustment, refer to figure 23.
 - a. On left side of mower, make sure eccentric nut is in the correct position (see left illustration of figure 23). Loosen outside nut (A, figure 23) and rotate eccentric nut (B) so that flat side with hole closest to it is towards the rear. Tighten outside nut (A) while holding eccentric nut (B).
 - b. On right side of mower, loosen outside nut (A, figure 23).
 - c. Turn eccentric hex nut (B) counterclockwise to raise side of mower or clockwise to lower right hand side of mower. Do not turn eccentric hex nut (B) more than 1/4 turn in either direction. After 1/4 turn, turning eccentric nut will move mower in opposite direction (raise or lower) than when starting adjustment.
 - d. When adjustment is correct, hold eccentric nut (B) and tighten nut (A) to 30 ft. lbs. Recheck measurement on both sides of mower.

Note: When using highest cutting position on Dial-A-Cut™ control or transport position to mow, rear mower rollers may be off the ground. Side-to-side levelness can only be maintained if spacers on mower lift bar bracket are set equally from left to right. Refer to Transport Height Adjustment in this section.

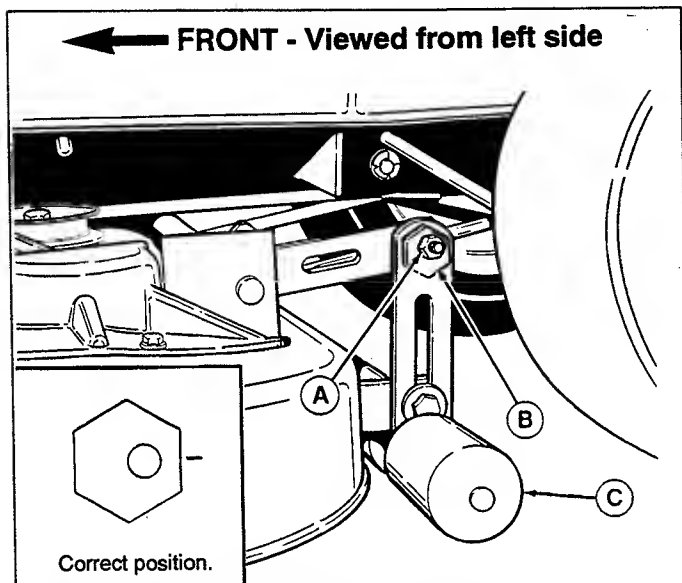
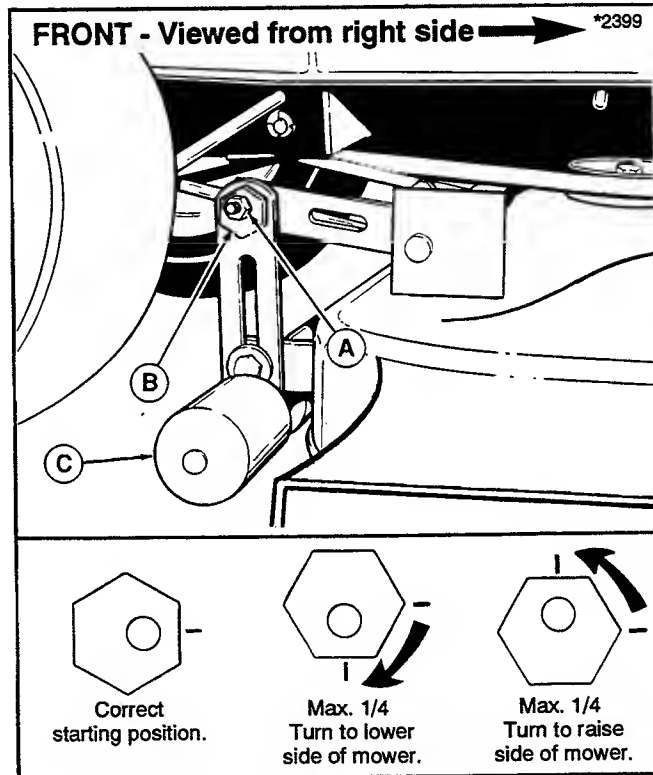


Figure 23. Side-to-Side Leveling (34" Deck shown)

A. Nut
B. Eccentric Nut
C. Rear Rollers



FRONT-TO-BACK LEVELING

- 1 Make sure mower is level from side-to-side (refer to previous adjustment). Make sure that rear mower rollers are on the ground.



CAUTION

Mower blades can cut hands if not protected by gloves. Turn the mower drive belt by hand to rotate blades into position or wear gloves to turn blade(s) by hand. On mulching mower decks, make sure fingers do not become pinched between mower blade and mower lip.

2. Position blade(s) front-to-back. Measure the distance from the ground to front tip of blade(s), and from ground to rear tip of blade(s). On the 34" mower, front tips should be 1/4" (6 mm) higher than the rear tips. On the 30" mower, the front tip should be level to 1/8" (3 mm) higher than rear tip. For adjustment, refer to figure 24.
 - a. To raise front of mower deck, loosen jam nut (E) and rear nut (B). Turn adjustment nut (A) against bracket (C) to lengthen leveling rod (D).
 - b. To lower front of mower deck, loosen jam nut (E) and adjustment nut (A). Turn rear nut (B) against bracket (C) to shorten leveling rod (D).
 - c. Recheck measurement before tightening adjustment nut (A) and jam nut (E) against bracket.

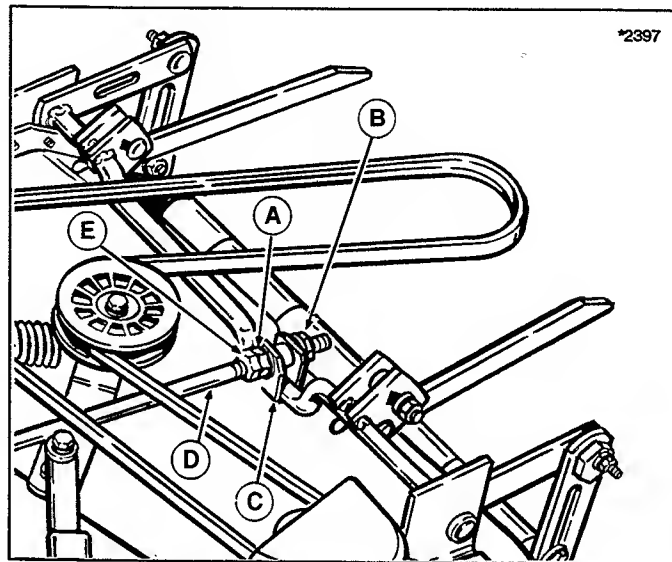


Figure 24. Front-to-Back Leveling

- A. Adjustment Nut
- B. Rear Nut
- C. Bracket
- D. Leveling Rod
- E. Jam Nut

TRANSPORT HEIGHT ADJUSTMENT

Transport height should be adjusted so that rear mower rollers (B, figure 25) are $1/8$ "- $1/4$ " (3-6 mm) above ground when mower lift lever is in transport position. To adjust height perform adjustments under Mower Leveling first, then use the following procedure:

1. Park rider on a flat, level surface.
2. Adjust Dial-A-Cut™ control so that front edge of mower lift lever is aligned with 2-3/4 mark (34" mower) or at 3 mark (30" mower) on the quadrant scale.
3. Loosen nut (C) and position spacer (A) against rear trailing arms (D). Position both the left and right side spacers against the trailing arms.
4. Tighten nut (C) securely.
5. Place mower lift lever in transport position. Rear mower rollers should both be $1/8$ "- $1/4$ " off ground. If not, repeat steps 2 through 4.

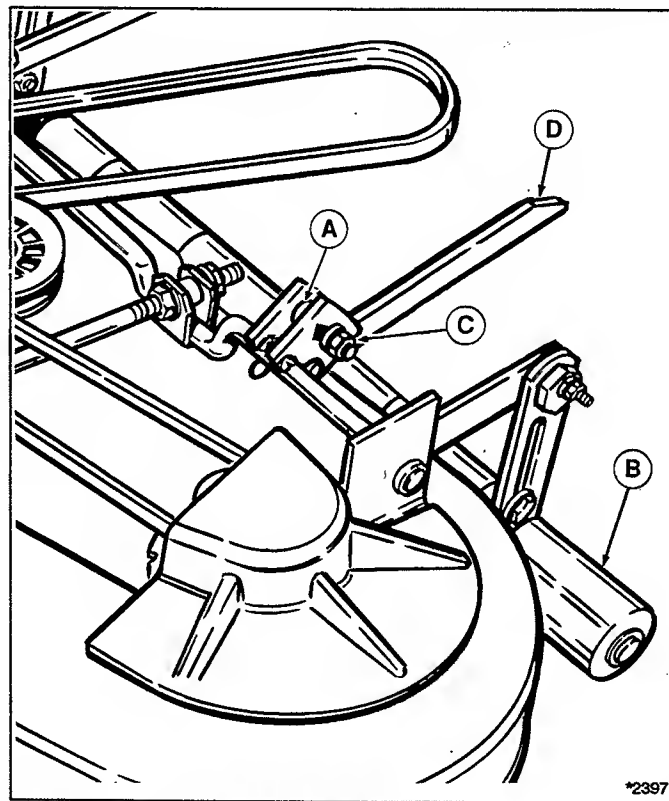


Figure 25. Transport Height Adjustment

A. Spacers

B. Rear Mower Rollers

C. Nut

D. Rear Trailing Arms

BRAKE ADJUSTMENT

1. On gear models, place the transmission in gear and release parking brake. On hydro models, release the parking brake.
2. Remove the tension spring (A, figure 26).
3. Move the brake cam (B) forward. On gear models there should be a $1/8"$ gap between the cam (B) and the spacer (C). On hydro models, there should be $1/8"$ gap between the cam (B) and the transaxle cam stop (similar to location of spacer (C) as shown in figure 26).
4. To adjust clearance, turn the nut (D) clockwise to tighten nut and decrease gap. Turn nut counterclockwise to loosen nut to increase gap.

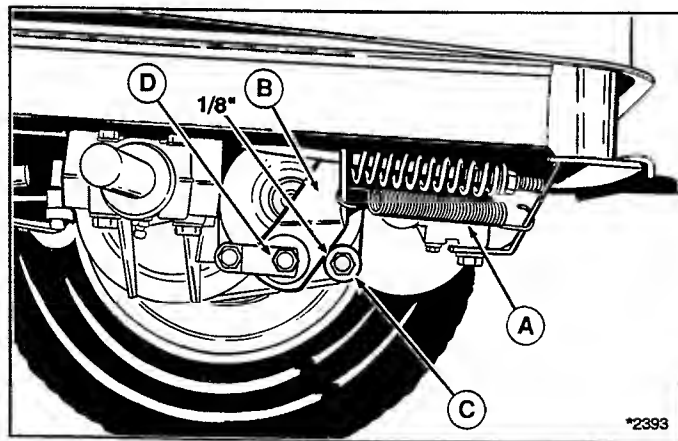


Figure 26. Brake Adjustment (Gear Model shown)

A. Tension Spring
B. Brake Cam

C. Spacer
D. Nut

CLUTCH/BRAKE ROD ADJUSTMENT

NOTE: Make sure brake adjustment is correct (see preceding adjustment).

1. Release parking brake.
2. Remove end of tension spring (A, figure 27) from bracket.
3. Push compression spring (B) against brake cam. On gear models, there should be $1/2"$ clearance between the compression spring (B) and nut (C) as shown in figure 27. On hydro models, there should be $3/4"$ clearance between the compression spring (B) and nut (C).
4. To adjust, turn adjustment nut (C) as necessary for correct spring gap.

NEUTRAL ADJUSTMENT (Gear Models)

Perform the following adjustment if the shift lever is in the neutral position, but transmission is actually engaged in first or reverse gear.

1. Position rider on flat level ground and start rider.
2. With the engine running, position shift lever so that the rider has no forward or reverse movement (shift lever may not necessarily be in the neutral gate). Shut off the rider engine and do not depress clutch/brake pedal or move shift lever.
3. Loosen the nut (A, figure 28) that secures the front control rod (B) to the rear control bar (C). Control rod must be free to move.
4. Move the shift lever to the neutral gate.
5. Tighten nut (A, figure 28) securely to 17 ft. lbs.
6. Check operation of rider for any movement with shift lever in neutral gate.

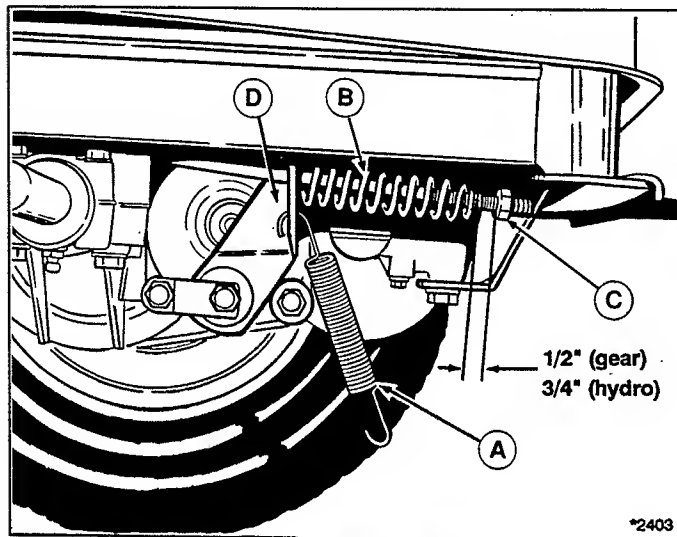


Figure 27. Clutch/Brake Rod (Gear Model shown)

- A. Tension Spring**
- B. Compression Spring**
- C. Nut**
- D. Brake Cam**

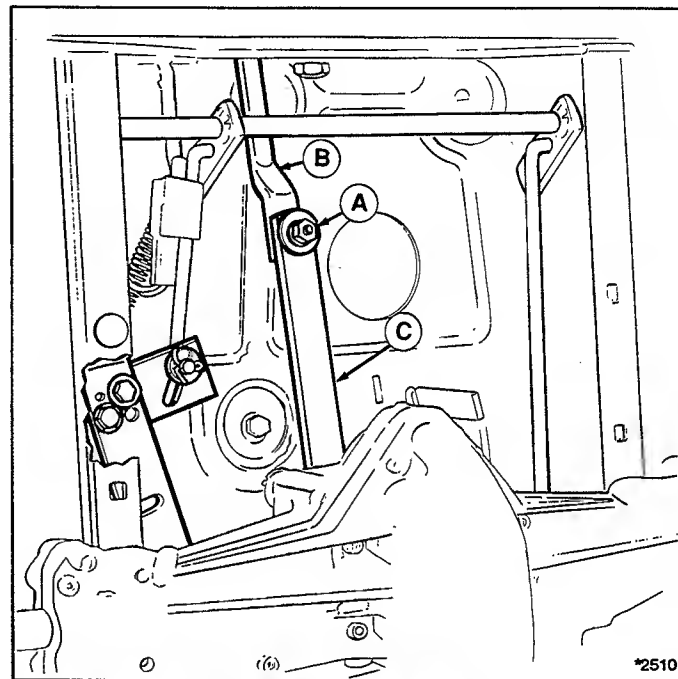


Figure 28. Neutral Adjustment (Gear Models)

- A. Nut**
- B. Front Control Rod**
- C. Rear Control Bar**

NEUTRAL ADJUSTMENT (HYDRO MODELS)

Perform the following adjustment if the shift lever must be moved out of the neutral gate to prevent forward or reverse rider movement. With the shift lever in the neutral gate and the clutch/brake pedal released, a small amount of travel in the shift lever may be required to fully stop rider.

1. Position rider on flat level ground and start rider.
2. With engine running, position the shift lever so that the rider has no forward or reverse movement (shift lever may not necessarily be in the neutral gate). Shut off the rider engine and do not depress clutch/brake pedal or move shift lever.

Alternate method: Raise rear wheels off ground and support rider frame with jackstands. Move shift lever forward and reverse and then move shift lever so that rear wheels do not rotate.

3. Loosen the nut (A, figure 29) that secures the front hydro control rod (B) to the rear rod (C). Control rod must be free to move. If performing the return-to-neutral adjustment, loosen the two nuts (A, figure 30) that secure the front return-to-neutral rod (B) to the rear rod (C). Front return-to-neutral rod must be free to move.
4. Move the shift lever into the neutral gate.
5. Tighten the nut (A) securely to 17 ft. lbs.
6. Check operation of rider for any movement with shift lever in neutral gate. Perform the return-to-neutral adjustment (refer to following paragraph).

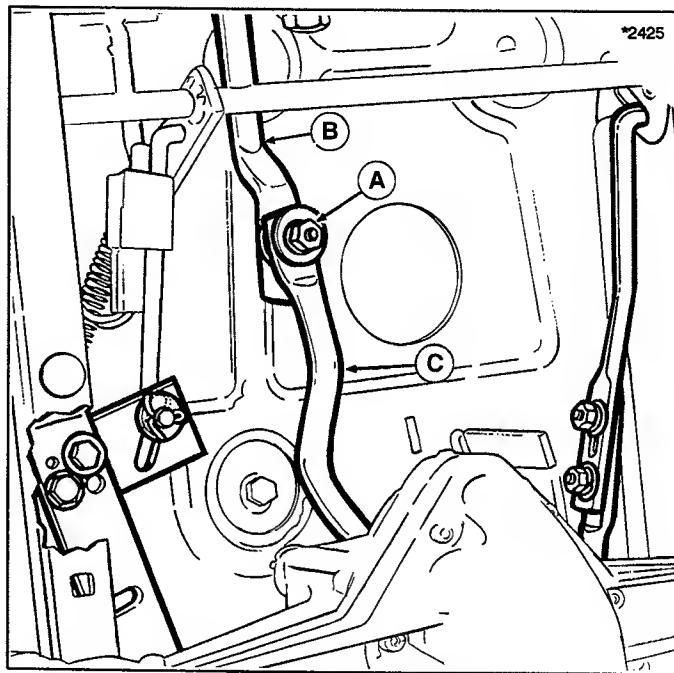


Figure 29. Neutral Adjustment (Hydro Models)

A. Nut

B. Front Control Rod

C. Rear Control Rod

RETURN-TO-NEUTRAL ADJUSTMENT (Hydro Models)

Perform the following adjustment if the shift lever does not return to the neutral gate when the clutch/brake pedal is fully depressed. Make sure the front hydro control rod (B, figure 29) is lubricated and does not bind in the carrier frame hole.

1. Make sure the Neutral Adjustment is correct (refer to preceeding paragraph).
2. Loosen the two nuts (A, figure 30) that secure the front return-to-neutral rod (B) to the rear rod (C). Front return-to-neutral rod must be free to move.
3. Place the shift lever in the full forward position (highest ground speed setting in the transport quadrant - refer to figure 2).
4. Move the front return-to-neutral rod all the way rearward in the slot to shorten the length of the assembled return-to-neutral rods. Tighten the two nuts (A) with rods in this position.
5. Start the rider and check the return-to-neutral operation.

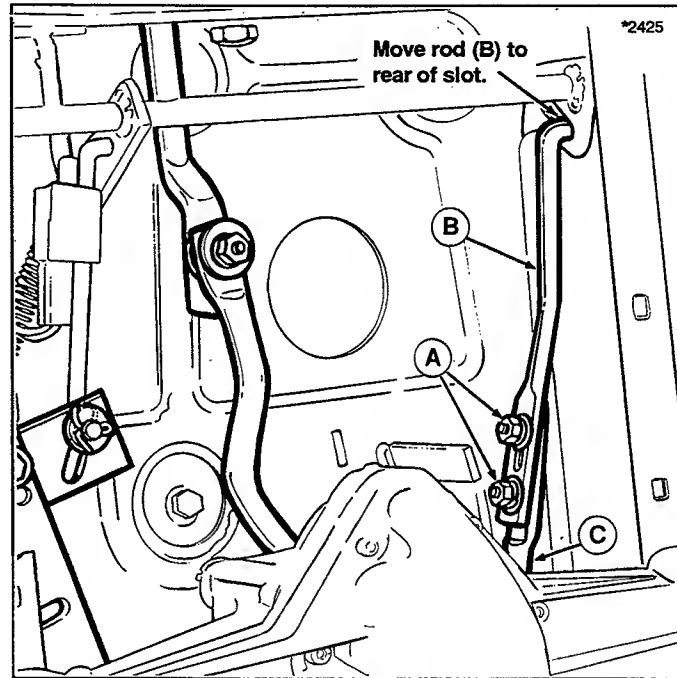


Figure 30. Return-to-Neutral Adjustment

A. Nut

B. Front Return-To-Neutral Rod

C. Rear Return-To-Neutral Rod

Adjustments

IDLER PULLEY ADJUSTMENT (Hydro Models)

Perform the following adjustment if the rider drive belt does not completely declutch when the clutch/brake pedal is depressed. To inspect the belt, start the rider engine and apply the parking brake. The drive belt should not be rotating with the parking brake applied.

If adjustment is required, stop the engine and release the parking brake. Inspect the idler pulley plate (A, figure 31) for correct position. With the clutch/brake pedal released, the forward edge of flat washer (B) should be positioned at the forward edge of slot (C) as shown in figure 31. This will ensure proper declutching of drive belt when the clutch/brake pedal is depressed.

To adjust, loosen the capscrew (D) and taprite screw (E) securing the idler pivot plate (A). Rotate the plate until forward edge of flat washer (B) is positioned at the forward edge of slot (C). Tighten the attaching hardware when adjustment is correct.

Inspect the belt again with the engine running and the parking brake applied. The drive belt should not be rotating with the parking brake applied.

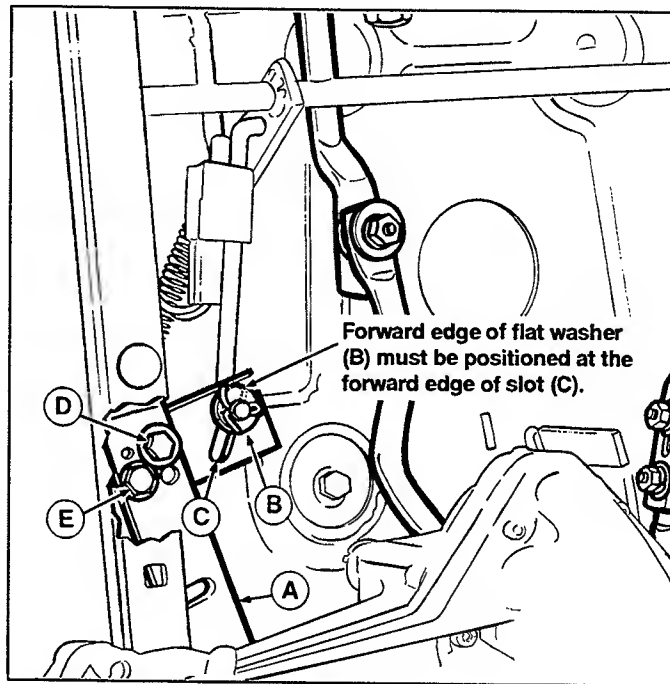


Figure 31. Idler Pulley Adjustment

A. Idler Pulley Plate

B. Flat Washer

C. Slot

D. Capscrew

E. Taprite Screw

STEERING GEAR ADJUSTMENT

If there is excessive slack in the steering system, the steering gear can be reindexed to the steering shaft gear. Refer to figure 32. Loosen two capscrews (A, figure 32) and push bracket so that gear teeth are closely meshed. Retighten nuts after adjustment.

MOWER BLADE STOPPING CHECK

Mower blades and mower drive belt should come to a complete stop within five seconds after electric clutch switch is turned off.

With tractor in neutral, electric clutch switch disengaged, and operator in seat, start tractor engine. Look over left hand footrest at mower drive belt. Engage electric clutch switch and wait several seconds. Disengage electric clutch switch and check time until mower drive belt stops.

If mower drive belt does not stop within five seconds, see your dealer to service electric clutch.

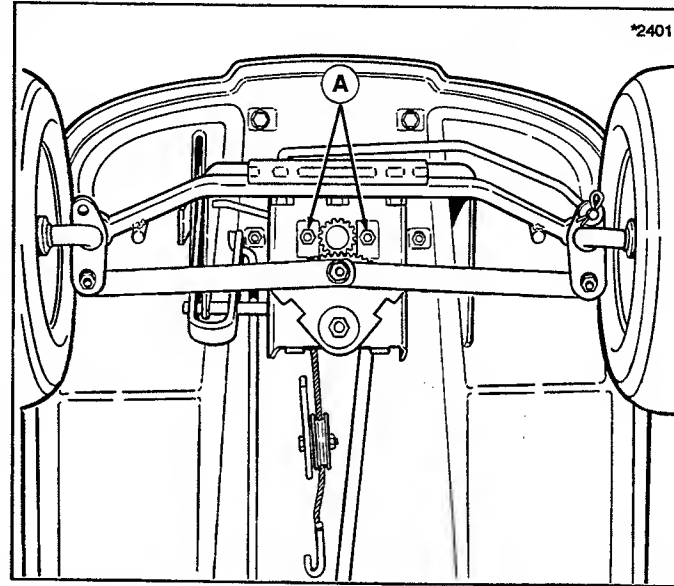


Figure 32. Steering Gear Adjustment
A. Capscrews

Specifications

ENGINE:

8.5 & 12.5 HP Briggs & Stratton

Make	Briggs & Stratton
Model	I/C Balanced
Horsepower	8.5 HP (6.3 Kw) 12.5 HP (9.3 Kw)
Cylinders	1
Bore	8.5 HP: 3.00 In. (76.2 mm) 12.5 HP: 3.44 In. (87 mm)
Stroke	8.5 HP: 2.75 In. (69.8 mm) 12.5 HP: 2.62 In. (66 mm)
Displacement	8.5 HP: 19.44 Cu. In. (319 cc) 12.5 HP: 24.36 Cu. In. (400 cc)
Starter	12-Volt Electric w/Key Switch
Ignition	Electronic; Solid State, Maintenance Free
Governor	Mechanical Fly Weight
Engine RPM	1750-3400 rpm
Construction	Cast Iron Sleeves, Aluminum Crankcase
Electrical System	12 Volt, 3 amp. D.C. Unregulated Battery: 240 Cold Cranking Amps, 23 min. Reserve Capacity
Air Cleaner	Reusable Oil Foam Element
Lubrication	Crankcase Oil Bath
Oil Capacity	8.5 HP: 2.25 Pints (1.06L) 12.5 HP: 3 Pints (1.4L)
Fuel Tank Capacity	2 Gallons (7.5 L)
Muffler	Quiet Compact, Low Back Pressure

GEAR TRANSMISSION:

Type	Spur Gear
Material	Gear: Powdered Metal Shaft: Hardened Bearings: Needle Roller & Bushings Bentonite Grease (Note: Transmission is sealed unit.)
Lubrication	Bevel Gear Type
Differential	Five Forward, One Reverse
Gear Range	1st: 1.2 MPH (1.9 km/h) 2nd: 2.4 MPH (3.9 km/h) 3rd: 3.5 MPH (5.6 km/h) 4th: 4.4 MPH (7.1 km/h) 5th: 5.6 MPH (9.0 km/h)
Ground Speed	Reverse: 2.0 MPH (3.2 km/h)

HYDRO TRANSMISSION:

Type	Hydrostatic
Lubrication	20W-50 Engine Oil (Note: Transmission is sealed unit.)
Differential	Bevel Gear Type
Ground Speed	Infinite Forward: 0 - 5.0 MPH (8.1 km/h) Reverse: 0 - 2.0 MPH (3.2 km/h)

CHASSIS:

Frame	Heavy Gauge, Deep Drawn Steel
Front Axle	Self-Leveling Quick Hitch
Seat Deck	Lightweight Polymer Alloy
Seat	Med. Back, Molded Type w/Foam Cushion w/Spring Suspension
Adjustment	3" Fore and Aft
Footrests	Full Length, Deep Well
Front Wheels	Tire Size: 13 x 5.00-6 Pneumatic Tubeless, Turf Pattern Inflation Pressure: 10-12 psi (68-82 kPa)
Rear Wheels	Tire Size: 16 x 6.50-8 Pneumatic Tubeless, Turf Pattern Inflation Pressure: 10-12 psi (68-82 kPa)
Accessibility	Seat Deck Tips Forward
Turning Radius	12" (30.2 cm)
Inside Rear Wheel	

CONTROLS:

Clutch/Brake Pedal	Combination Clutch & Brake Pedal
Clutch	Belt Idler Type
Brake	Disc Type
Parking Brake	Dash Lock Finger Release
Steering Type	Gear & Sector
Gear Shift	Dash Mounted
Throttle Control	Combination Speed and Choke Control in Seat Deck (RH side)
Key Switch	Starter and magneto Off-On Switch
Mower Drive	Electric Clutch PTO
Mower Cutting Height	Infinite Height of Cut at Steering Column

DIMENSIONS:

Height at:	
Steering Wheel	41 In. (104.1 cm)
Seat Back	35 In. (88.9 cm)
Engine Cover	28 In. (71.1 cm)
Length Overall:	61 In. (155 cm)
Width:	
w/30" Mower	38.5 In. (97.8 cm)
w/30" Mulching Mower	38.5 In. (97.8 cm)
w/34" Mower	45.5 In. (115.6 cm)
at Rear Wheels	33 In. (83.8 cm)
Wheel Base	43 In. (109.2 cm)
Weight (approx.):	
8.5 HP w/30"	Net: 405 lbs. (183 kg) Shipping: 530 lbs. (241 kg)
12.5 HP w/30M	Net: 410 lbs. (186 kg) Shipping: 530 lbs. (241 kg)
12.5 HP w/34"	Net: 415 lbs. (187 kg) Shipping: 535 lbs. (243 kg)

MOWER:

Type	30": Single Blade 30" Mulcher: Single Blade 34": Two Blade
Height of Cut	1.0 - 3.75 In. (2.54 to 9.53 cm)
Cutting Positions	Infinite (Exclusive Dial-A-Cut™ Control)
Level Adjustments	Side to Side and Front to Back
Spindles	Sealed Ball Bearings - Lube Fitting Provided
Blade Mount	Center Bolt with Spring Washer
Disch. Deflector	Hinged with Spring Positioning
Mounting	At Front Axle - Quick Hitch with Auto Leveler™

Common Replacement Parts

Listed below are part numbers for the more common replacement parts. Only genuine replacement parts will assure optimum performance and safety. Do not attempt repairs or maintenance unless proper procedures and safety precautions are followed. For assistance in any area, see your dealer.

REPLACEMENT PARTS

QTY. PER UNIT	DESCRIPTION	PART NUMBER
	Mower Blades	
1	30" Mower	1664019
1	30" Mulching Mower	1706290
1	34" Mower, Large Blade (RH)	1706738
1	34" Mower, Small Blade (LH)	1706737
	Mower Belts	
1	30" Mower Drive	1651201
1	34" Mower Drive	108209
1	Gear Drive Belt	1676460
1	Hydro Drive Belt	1709323
2	Retaining Pin - Mower Lift	1960074
1	Ignition Key	170438
1	Switch, Seat	1704379
1	Battery - Pow'r Max	1685215
1	Solenoid	1685290

MAINTENANCE ITEMS

DESCRIPTION

PART NUMBER

• Simplicity Engine Oils (Your dealer has 1 qt. cans)	
SAE 5W-30 SF/CD	
(Cold Weather 30° & under)	Case of 12 Qts. 1685576
SAE 30W SG/CC	
(Warm Weather)	Case of 12 Qts. 1685659
• Touch-Up Paint	
Deep Orange Spray Paint, 13 Oz. Can	1685611
Deep Orange Paint, 1 Qt	1685612
White Spray Paint, 13 Oz. Can	103049
Pearl Grey Spray Paint, 13 Oz. Can	1685668
Touch-Up Daubers	
Deep Orange, 1/2 Oz. Bottle w/Brush Cap	1685615
White, 1/2 Oz. Bottle w/Brush Cap	1685550
• Grease Gun Kit w/8 Oz. Grease Tube	1685510
Replacement 8 Oz. Grease Tube for above	103077
• Designer Seat Cover	1685541
• Tire Sealant - Stops Tire Leaks, Prevents Flats.	
11 Oz. Tube	1685523
• Gas Can - No Tip Design. Durable Polyethylene.	
1 Gallon	1685587
2-1/2 Gallon	1685555
5-1/4 Gallon	1685556
• Cleaner, Polish, Sealant & Protectant, 8 Oz. Bottle	168596
(Recommended for use on polymer body)	
• Degrimer/Degreaser	
32 Oz. Bottle w/Trigger Spray	1685619
1 Gallon	1685621

Additional Technical Literature Available

Operators Manuals

Additional copies of this manual are available, (and as part of our product support commitment, we maintain a stock of printed operators manuals going back over 25 years!)

Parts Manuals

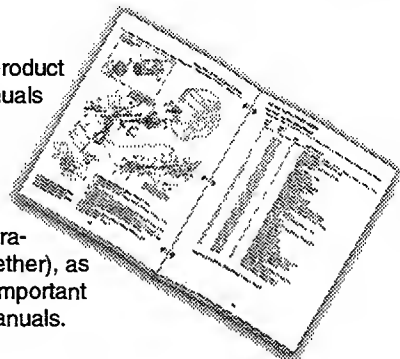
Fully illustrated parts manuals are also available — these manuals show all of the product's components in exploded views ("3D" illustrations which show the relationship of the parts and how they go together), as well as giving the replacement part numbers and quantities used. Important assembly notes and special torque values are included in these manuals.

Repair & Service Manuals

In addition, for many models, we have in-depth repair & Service Manuals available, which take you step-by-step

through maintenance, tear-down, component replacement and re-assembly procedures.

For the available manuals applicable for your model, contact the Customer Publications Department at 414-284-8519. Have the information listed in the box at the right available when phoning in your request.



Model: _____

Mfg. No.: _____

Your Name: _____

Address: _____

City, State, Zip: _____

Visa/Mastercard No.: _____

Card Expiration Date: _____

International Symbols



Choke



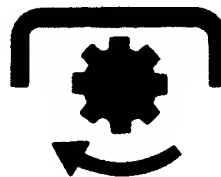
**Fast
(Throttle)**



**Slow
(Throttle)**



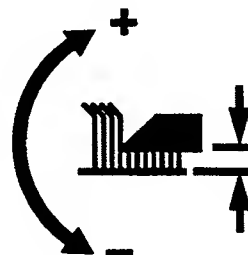
**Engine
Running**



**PTO
Engaged**



**Parking
Brake**



**Mower
Cutting
Height**

Simplicity

MANUFACTURING, INC.

500 N Spring Street / PO Box 997
Port Washington, WI 53074-0997 USA

© Copyright 1993 Simplicity Manufacturing, Inc.
All Rights Reserved. Printed In USA.